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With Which Is Combined

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Outlook for Paper Business Brightening

Chicago Paper Executives Experienced Better Demand In March Than In Either February or January—Anticipate Revival of Normal Trading This Month, Due to Consumers Stocks Being Low—Quotations Firmer On Various Grades of Paper—Kraft Wrapping Paper and Bags Holding Up Well—Fine Paper Market Trend Irregular

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 4, 1932—Fundamentally, March has been characterized by Chicago paper executives as a better business month than either January or February, and there are hopes, based on fairly sound arguments, that April will mark a revival of business sure to be of benefit to a paper market in which the consumer trade is at a low ebb as far as supplies on hand are concerned. No actual business improvement of any consequence was noted, although, outside of the paper world, various governmental agencies at work to restore confidence and speed up business, were said to be laying the foundation for improvement.

A firmness developed in the majority of paper lines in Chicago during the last week of the month. In the kraft and bag markets the steadiness which was achieved earlier in the year was maintained, although retail and industrial trade itself was slow. Twines were fairly soft—the uncertainty of the raw material market being a factor here. Finer grades of paper were spotty. Some of the bond, ledger and writing paper houses reported sufficient activity to cause spurts in mill operations. Others reported slight improvement only. Books and covers showed little change, with the tendency toward softness displayed two weeks ago still reported in evidence. News print and ground woods continued dull—the long expected improvement in newspaper and publication advertising failing to appear. The board market remained the same. The final week of the first quarter showed no appreciable changes in the waste market.

Postage Rate Increase Discussed

Comments of Chicago paper executives on the actions of the House of Representatives in increasing first class postage rates to three cents as one means of balancing the federal budget indicated an admirable desire to forego any selfish complaints in order that the drastic effects of an unbalanced budget might be forestalled. The executives recognize that the possibility of an increase in postage rates is not exactly designed to further the popularity of first class mail and will undoubtedly act as a hindrance in the development of direct mail practices to the fullest extent. However the paper men, for the most part, feel that everybody will find it necessary to sacrifice in order to balance the budget. It is a common opinion that unless the budget is balanced—and at any cost—that business will be far worse off than if it made present sacrifices.

Chicago Paper Association's Activities

At a meeting of the Chicago Paper Association on April 12 arrangements will be completed for an invitational dinner and meeting which will be held the latter part of April, probably April 26. By April 12 the group of coarse paper executives who have been sojourning in Florida will have returned, including Frank Peck, Sam Inlander, Leo S. Altholz, J. F. Murnane and others, and complete details of the session designed to draw new members into the local coarse paper group will be arranged. In the meantime, reports from coarse paper executives in the Chicago market indicate that the kraft and bag situation remains favorable with the market on both characterized as fairly hard. The twine market is reported as not quite so favorable. Retail and industrial trade is slow, the condition of business in general reacting directly on the sales in these lines. An expected livening of business for spring demand is expected to help the over-the-counter situation in April.

Midwest Safety Conference Program

The Tenth Annual Midwest Safety Conference, held under the auspices of the Chicago Safety Council, is to be held in Chicago at the Sherman Hotel on Wednesday and Thursday, April 6 and 7. This annual event always attracts the attention of paper mill executives most of whom have well established safety programs within their own organizations. While no specific program has been arranged for the paper and pulp field, the fire prevention, chemicals and general sessions are expected to prove of interest. "Justifying the Safety Program" and "Effective and Economical Safety Program for the Small Plant" at the General Session on April 7 and "The importance of Fire Prevention in the Safety Program" at the Fire Prevention Session on April 6 are perhaps the best drawing cards from the paper and pulp standpoint.

News of the Trade

M. A. McNulty, of the McNulty Paper and Twine Company, of Chicago, has been confined at home with a siege

(Continued on page 26)

Import Duty on Foreign Pulpwood Requested

Representatives of Paper and Pulp Mills and Lumbering Interests Importune Congress to Remedy Underselling by European Countries, At Forestry Congress Held In Milwaukee, Wis. —Dr. Raphael Zon Discusses Timber Supply Problems

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 4, 1932—More pressure was put behind the movement for an emergency import duty on foreign pulpwood as the result of a forestry conference called at Milwaukee, Wis., last week by E. W. Tinker, regional United States forester for Wisconsin, Minnesota and Michigan. About 75 representatives of pulp and paper mills and lumbering interests were present from the three states to study the growing problem of forestry and the effect of outside forces on the welfare of the industries with wood as their basic material. About three days were devoted to an exhaustive discussion of the subject.

Mr. Tinker was one of the first to attract support to the pulp industry when Swedish tramp steamers began dumping pulp at Great Lakes ports at approximately $50 a ton, when the cost of manufacture here is a minimum of $55. Various organizations have heeded the situation and have adopted resolutions importuning Congress to remedy the underselling caused by low wages, low living standards and depreciated currency of European countries. A like resolution was adopted by the conference and perhaps will carry more weight than all others, because it comes from the manufacturers directly affected.

New problems that confront industries and governmental units in the matter of timber supply were presented by Dr. Raphael Zon, director of the Lake States Experiment Station at St. Paul, Minn., who has made an intensive study of these matters.

"We are seeing today the creation of a new public domain," he explained. "The situation is exactly the reverse of that which existed 50 or 75 years ago when individual states and the national government were so lavish with their gifts of land through the homestead act and their efforts to encourage the expansion of railroad and lumbering industries. Ownership of great tracts of land is passing from private hands to the states, or, as in the case of Wisconsin, to the respective counties in which the lands are."

More than 6,000,000 acres of land in sixteen or seventeen northern counties of Wisconsin have become public property and the acreage is rapidly increasing, according to Dr. Zon, while in Michigan more than 3,000,000 acres of the cutover lands, because of delinquent taxes, have reverted to the state. By 1936, he continued, more than 10,000,000 acres will have passed from private ownership into the possession of Minnesota.

"What to do with these lands," he said, "constitutes a big and serious problem. To reclaim them would cost $5 or $6 an acre. And the states have not that much money to finance their reclamation. The lands are like so many lost and poor relations suddenly come back to the home fireside.

"Reforestation of some of these acres, of course, is a partial solution. But this reforestation should be intensively carried out on only a few of the millions of acres—acres strategically located near pulp and paper mills. For into the idea of reforestation must come plan and organization."

Largely out of Dr. Zon's suggestions came the appointment of a committee consisting of Dr. Zon; W. A. Holt, of Oconto, Wis., and George McCallum, of Detroit, Mich., which will ask the Secretary of Agriculture to call an early regional planning conference at which representatives of local, state and federal units dealing with timber land problems in the lake states would form a permanent organization.

Committee reports had been prepared on various phases of forestry and were presented at the conference. Out of them Mr. Tinker hopes to obtain a comprehensive plan where the public's interest in forest products would be protected. Reports showed that high taxes, foreign competition and low prices were cited by representatives of the pulp making industries as reasons why timber land owners hesitate to practice reforestation on their holdings. Shorter working hours, an orderly reduction in wages, and equalization of currency between this and other nations were offered as means towards solution of the problem.

It was agreed in other resolutions: That national forests in the lake states should be enlarged; that timber land should be deeded to the state when its value no longer justified the carrying charges; that liquidation of virgin timber stands would be stopped if excessive tax burdens were removed; and that destructive logging of virgin timber is wasteful, uneconomic and unnecessary, but the tax problem is responsible for its continuation.

To Advertise Wisconsin Paper Products

Co-operative efforts to boost the sale of Wisconsin paper products will be tried out by a new organization formed last week at a meeting at Appleton, Wis., at which representatives from paper mills and converting plants were present. An extensive advertising campaign is to be worked out urging purchase of Wisconsin paper products.

Officers of the new organization are: President, Norman Stone, general manager of Mosinee Paper Mills Company, Mosinee, Wis.; vice president, Leo Croy, Menasha, Wis.; secretary and treasurer, C. B. Clark, president and general manager, Riverside Paper Corporation, Appleton, Wis. The advertising committee in charge of preparing the campaign is to consist of E. S. Colvin, Appleton Coated Paper Company, Appleton, Wis.; Mark Peacock, Bergstrom Paper Company, Neenah, Wis.; Allan Pratt, Menasha, Wis., and Richard Bellack, Stevens Point, Wis.

Judson Rosebush Discusses Business Conditions

Some interesting facts concerning the present business situation and the readjustment which will bring back normal conditions were presented by Judson G. Rosebush, president of the Patten Paper Company, Ltd., and vice president and manager of the Northern Paper Mills, in an address before the Rotary Club of Kaukauna, Wis., last week.

Raw materials, said Mr. Rosebush, are back to the 1914 price. The problem confronting the manufacturer is how it is possible to produce the finished product at 1929 salaries and wages at 1914 prices. Efficient machinery that we did not have in 1914 will partially solve it. Better marketing conditions will also have some effect. However, he believes there is going to be a steady readjustment bringing

(Continued on page 47)

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Every one a
VICKERY
DOCTOR
all operating
in one mill . . .
Write for performance data on this
record-breaking installation.
BIRD MACHINE
COMPANY
SOUTH WALPOLE
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5309

Demand for Paper Spotty in Philadelphia

Various Standard Grades of Fine Paper Only in Moderate Request—While Book Papers Are Moving More Freely to Large Consumers, Orders Are Below Volume of Corresponding Period in 1931—Jobbing Division of Industry Steadier

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 4, 1932—Continued spotty trading for the distributors and mill representatives in the local industry prevails. An encouraging factor is the steadiness of the jobbing division of the trade. Prices are firmer in that branch of the industry than elsewhere. Fine paper dealers report dragginess in demand, with small lot buying the order of current trading. Bulkier book papers move more freely among mill agents catering to large consumers, but there has been a falling off in orders compared to volume of business contracted at this season in 1931.

Hugh Wright Addresses Paper Jobbers

An elucidating talk on the benefits incurring from organized effort and functioning of the Bag Institute of New York was given by Hugh Wright, assistant sales manager of the Southern Kraft Corporation, at the meeting of the Philadelphia Paper Jobbers Association on March 30 at the Elks Club. He reviewed conditions of the industry in New York and then told the members how the Bag Institute was functioning, its experiences, and recurring benefits to the bag dealers.

Wilder Discusses Profitable Paper Business

Charles A. Wilder, head of Wilder Bros., and member of the Philadelphia Paper Trade Association, was another guest speaker. He gave an enlightening discourse on profitable paper trading, stressing the importance of basing sales on measures that will be productive of profits, and not harmful competition, especially in the matter of handling small lot orders.

Nathan D. Isen and Lewis Gerber Report

President Nathan D. Isen reported on the progress which has been made in launching the campaign for the stabilizing of the local jobbing industry and the perfection of the work to be conducted by the body in the future course of the organization. Secretary Lewis Gerber gave a routine report on the members who were active in the various committees and the accomplishments of the past two weeks.

Philadelphia Paper Trade Association

At the next meeting of the Philadelphia Paper Trade Association on April 13 at DuFour's Restaurant, there will be presented reports on stabilization and increasing membership, set down in the program of President William A. Hentz, who has effected a solid platform upon which to build the future of the Philadelphia paper trade and is devoting his personal attention to promoting the welfare of the organization in personal contact with paper trade associates who are not already affiliated in order to bring the local industry and its individuals more solidly together in the work of constructive business measures that will be the objective of the coming meetings.

Another important functioning upon which reports will be made is the work of the Credit Interchange Bureau, which has been in operation since January of the current year. This work has been highly satisfactory to members throughout the short term of its administration. Another aggressive worker for binding together the local industry and the firms now engaged in the distribution of paper is Edward A. Keller, of the Garrett Buchanan Company, who, like President Hentz, is making it a personal matter to round up those distributive houses not already linked with the organization, some of these having been engaged in the paper business over a long period of years. It is expected that new associates will attend the coming session as guests with a view to giving first hand information.

Hooper Paper & Twine Co. To Celebrate

Arriving at the eleventh milestone of business history on April 23, the Hooper Paper and Twine Company, 105 Church street, will celebrate the occasion with a dinner and bridge party, to be held at the Hotel Pennsylvania on that date, when the business family will enjoy a social gathering graced by the presence of the fair sex. There will be awarded prizes to the sales staff, following a two months sales contest which terminates on that date, with awards made according to records attained by the salesmen. George K. Hooper, president and treasurer of the company; E. F. Hooper, vice president; E. V. Rementer, secretary; and fourteen of the staff will attend.

Ernest Reeves Heads D. L. Ward Twine Division

Ernest Reeves has been appointed manager of the Twine Division of the D. L. Ward Paper Company, 401 North Broad street. Until he became attached to the staff of the Ward company he was in business on his own account under the trade name of Armstrong & Co. Miss Mae Hillyer will continue as assistant to the new manager.

William Mansfield in Hospital

William Mansfield, Philadelphia manager of the Union Bag and Paper Corporation, is confined to the Atlantic Shores Hospital, at Somers Point, near Atlantic City, under observation for stomach trouble. He has been in the shore hospital for the past ten days.

D. K. Brown Tours Trade

Vice President D. K. Brown, of the Neenah Paper Company, Neenah, Wis., has been making the rounds of the Eastern distributors and stopped over in Philadelphia to call on associates in the distributive trade affiliated with his firm.

Charles Christman Visits Dealers

Charles Christman, representing the West Carrollton Parchment Paper Company, West Carrollton, Ohio, made a Spring tour of the trade here, reviewing the parchment situation as he finds it among the houses he has visited en route. He states that there is a steadier tone to the parchment market, with prices improving.

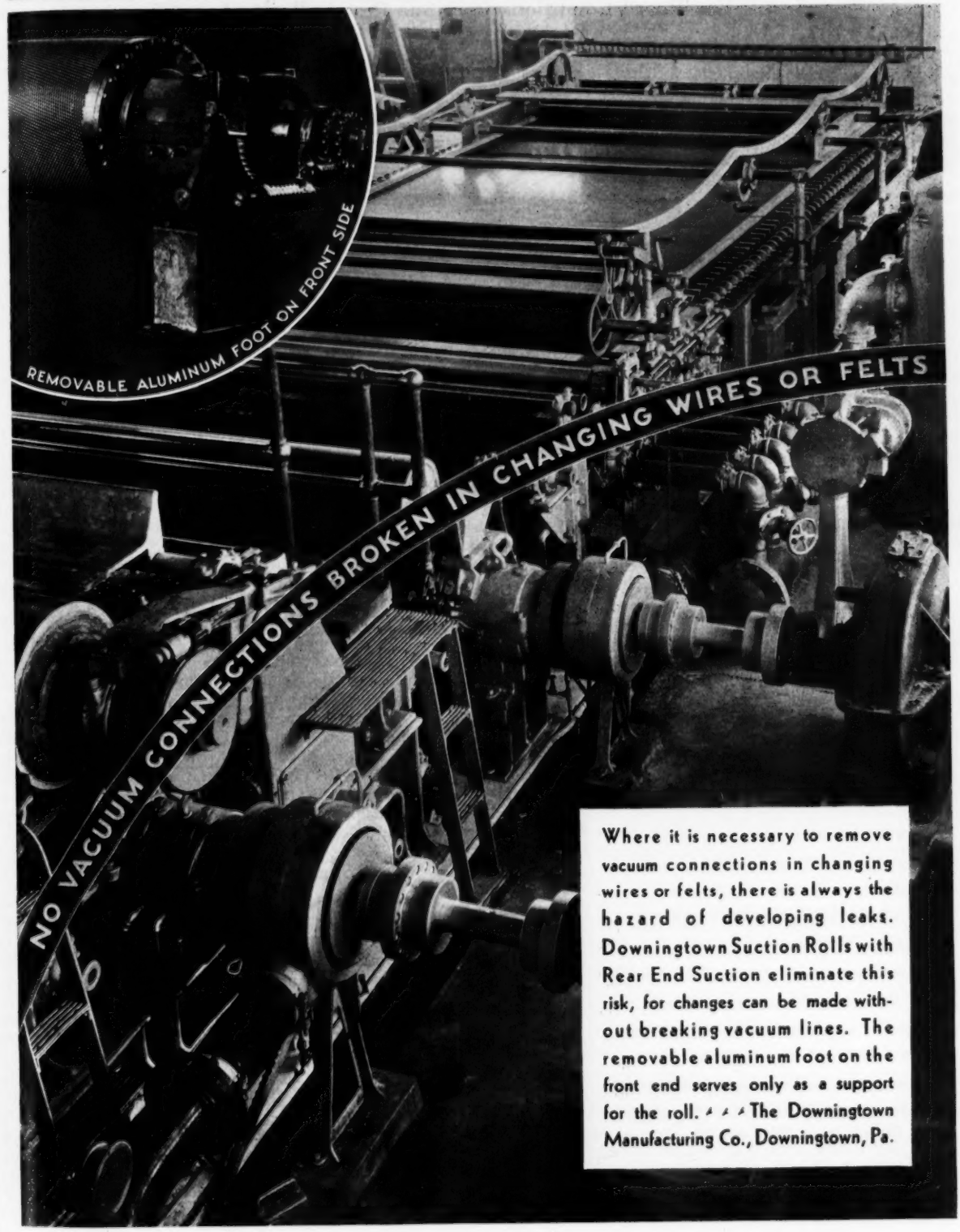
Returning Vacationists

Vice President Edwin A. Keller, of the Garrett Buchanan Company, has returned from a two weeks vacation at Atlantic City.

Samuel Kardon, head of the American Bag and Paper Company, who has been touring the Mediterranean countries the past month, accompanied by his daughter, Dorothy Kardon, returns to his desk April 6.

President Morgan H. Thomas, of the Garrett Buchanan Company, is back from a month's sojourn in Florida.

DOWNINGTOWN



Where it is necessary to remove vacuum connections in changing wires or felts, there is always the hazard of developing leaks. Downingtown Suction Rolls with Rear End Suction eliminate this risk, for changes can be made without breaking vacuum lines. The removable aluminum foot on the front end serves only as a support for the roll. ⁂ The Downingtown Manufacturing Co., Downingtown, Pa.

Boston Paper Market Displays Improved Trend

Slight Betterment Experienced In Demand for Various Standard Grades of Fine Paper—Wrapping Paper Outlook Brighter, With Substantial Volume of Orders Anticipated—Box Board Conditions Continue Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 4, 1932—A slight improvement developed in the paper industry in and around the Hub during the past week, according to an estimate made from statements given out by members of the trade. Some merchants say that their business has not been even fair, while others say it has been fair, and still others note a little larger volume of orders. New advertising campaigns are being launched. Many efforts are apparently being made to bring about a demand for merchandise. Along with the slight betterment in fine papers is that in box coverings. Confidence is displayed among manufacturers, with new lines offered from time to time.

In some quarters, towards the end of March and the beginning of the present month, wrapping paper has been looking up a bit, giving rise to encouragement for the consummation of a substantial volume of orders. Box board has continued in about the same demand, with hardly better than a fair demand prevailing. For the last week or ten days the paper stock market has been a trifle better in some quarters, although values are practically unchanged. There has been a slight drop in hard fiber twines.

New England Paper Merchants Meet

A very successful meeting of the New England Paper Merchants Association was held at the Harvard Club of Boston, Thursday evening, with about 45 present. President William H. Rourke was in the chair. Sidney L. Willson, president of the American Writing Paper Company, Inc., speaker of the evening, discussed general conditions. Russell S. Madden and R. D. W. Ewing, two of the vice-presidents of the American Writing Paper Company, made brief remarks.

News of the Trade

A book to be issued this week by Stone & Webster, Inc., recording their history and activities, is printed on paper manufactured by the S. D. Warren Company, for whose original mill at Saccarappa, now Westbrook, Me., Stone & Webster completed in 1890 their first hydroelectric installation, consisting of a direct current generating plant and transmission system. Although the power developed was only 400 hp., and the transmission distance 1.1 miles, this pioneering work, together with a larger plant for the S. D. Warren Company, ordered soon afterward and involving the use of alternating current, proved the commercial possibility of transmitting electrical power.

The Arnold-Roberts Company has just begun to handle and has in Boston a very large stock of Waterfalls Cover and Waterfalls Text, made by the Waterfalls Paper Mill, Mechanic Falls, Me. Each of these exceedingly attractive lines is of the regular vellum finish.

Arthur Lane, son of Andrew P. Lane, traffic manager of the Great Northern Paper Company, Boston, is president of a new steamship agency in Boston, Peabody & Lane, which has taken over the business of Rogers & Webb. The announcement of Mr. Lane's appointment as president was made the same day as his brother, Andrew F. Lane, assumed duties as foreign freight agent of the Boston & Maine Railroad.

A striking new line of box coverings, in silver, made by the Marvellum Company, Holyoke, Mass., is seen in Silray Papers. The patterns are Textile, Hammered Modern, Vein and Moire. These papers are stocked in 26 inch rolls. Henry L. Goodman is New England representative of the Marvellum Company.

The Falulah Paper Company, Fitchburg, Mass., exhibited papers in a display window in the South Station during March, under the auspices of the New England Council.

J. G. Voltmann, vice-president of the Kent Paper Company, New York City, converters of the Announcement line of the American Writing Paper Company, Inc., has been calling on the Boston distributors of that line, accompanied by James L. Sweet, of the American Writing Paper Company.

E. Davey Dodd, vice-president of the Davey Company, makers of binder and other boards, called on the trade last week.

Stecher Purchases Karle Litho Co.

ROCHESTER, N. Y., April 3, 1932—Purchase of the Karle Lithographic Company by the Stecher Lithographic Company, of 274 North Goodman street, brings into combination two of the largest and best known lithographic concerns in the United States. The Stecher Lithographic Company acquires outright the business of the Karle Lithographic Company, purchasing all assets except the real estate.

Otto R. Rohr, president and general manager of the Stecher Lithographic Company, said that after the purchase is completed the presses, machinery and all equipment of the Karle company will be removed to the plant of the Stecher company.

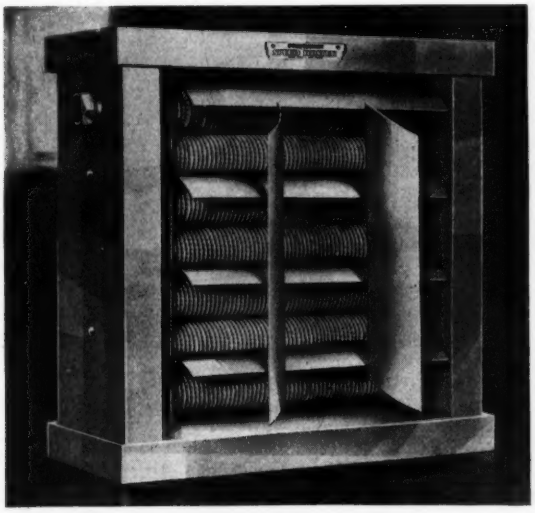
The Karle Lithographic Company was founded in 1899 by William Karle, who is now 77 years of age. The Stecher Lithographic Company was founded in 1886 by the late Frank A. Stecher, who passed away in 1916. Today its plant in North Goodman street has approximately 275,000 square feet of floor space and is regarded as a model in the lithographic industry.

Bogalusa Buys Equipment

General contract, according to press reports from New Orleans, was awarded on March 9 for a lime recovery plant at Bogalusa Paper Company, and contract was awarded to H. S. Cowgill of Bogalusa. Mechanical equipment will be furnished by the Mount Chemical Equipment Company of Lynchburg, Va. The undertaking which is one story in height, includes kiln firing and causticizing building and filter and pump building with tanks, kilns, motors and pumps.

Another contract on an industrial undertaking for the same organization was the award on March 9 for a waste water disposal concrete tank, said to cost approximately $85,000. The Dorr Company, 247 Park avenue, New York City, will furnish the mechanical equipment. Two pump houses, collecting sumps, and pipe line tunnel are included in this undertaking.

A Speedy Solution Of Emergency Heating Problems



ROSS UNIT HEATERS

These Ross Units are in general use in mills and storage buildings for heating cold areas that are not properly reached by duct distribution. They prove the quickest and most economical method for meeting many heating requirements that do not justify operation of main systems or installation of bulky apparatus.

CEILING TYPE
For Suspension From Ceiling.

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For Mounting On Platform.

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Designed for mounting in various positions and locations Ross Unit Heaters conserve space and insure lowest cost for installation and maintenance. They provide speedy transfer and even diffusion of heat; they are easily regulated and require practically no attention. The popular units for supplementary heating in pulp and paper mills.

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ROSS SYSTEMS
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New York Trade Jottings

R. & B. Paper Box Company has been incorporated under the laws of the State of New York, with a capital stock of $4,000. S. Fingerhut, of 299 Broadway, New York, was the attorney.

* * *

Quincy P. Emery, Inc., of 280 Madison avenue, New York, has been appointed mill agent in New York and adjacent territory by the Tileston & Hollingsworth Company, paper manufacturers, of Boston, Mass.

* * *

James Flett, leading Chicago paper stock dealer, with recently opened New York headquarters at 415 Greenpoint Avenue, Brooklyn, has added to the staff Lester E. Stewart, formerly president and owner of the L. E. Stewart Company, of Albany, N. Y.

* * *

Secretary of the Treasury Mills has approved the application of the Assistant Attorney General in New York for a review by the United States Court of Customs and Patent Appeals of the decision of the United States Customs Court involving the dutiable value of cello wrapping paper (bibulous tissue paper).

* * *

H. F. Masman and C. J. Browne, formerly of the Traffic Department of the National Association of Waste Material Dealers, Inc., have opened an office at 27 William street, New York, for the handling of traffic and other specialized work for individual concerns and groups engaged in the paper mill supply business, etc. The telephone number is Hanover 2-4075.

* * *

United States Senator Walter S. George of Georgia has been secured as the principal speaker at the annual dinner of the National Council of American Importers and Traders at the Hotel Astor on the evening of April 21, it was announced by George T. Riotte, executive secretary of the organization after a trip to Washington for a conference with the Senator. Phases of the tariff question will be discussed by Senator George. Another speaker will be Howard S. Cullman, member of the New York Port Authority.

* * *

The Swedish Chamber of Commerce in the United States has just published an interesting souvenir book to commemorate the Twenty-Fifth Anniversary of the chamber. The book, which is profusely illustrated contains a wealth of information regarding the activities of the chamber. Informative articles are contributed by G. Hilmer Lundbeck, Frederick M. Feiker, John Liljencrants, Counsel General Olof H. Lamm, S. C. Mead, Henry Goddard Leach, Charles K. Johansen and Ivar Kreuger. The offices of the Swedish Chamber of Commerce in the United States are at 405 Lexington Avenue, New York.

* * *

Walter F. Titus, general service manager of International Business Machines Corporation, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Fraternities Clubs Building, New York, on Monday. The success of the International Business Machines Corporation, and its continued success during the present business period, was attributed by Mr. Titus to its policy of long time planning. He also analyzed the general principles adopted by his organization and discussed present limitations, the prevailing trend, and the importance of new inventions. At the close of his address, Mr. Titus answered many questions from those present in an illuminating and interesting manner.

* * *

P. G. Mumford, president of American Machine and Metals, Inc., has announced the appointment of Perry Holder as vice-president and director of the Tolhurst Machine Works, well known manufacturers of extractors, which is a subsidiary of the former company. Mr. Holder will be in charge of operations. Mr. Holder has had wide experience in various fields allied with the textile and chemical industries. He was educated at Phillips Exeter Academy and Yale University, where he specialized in chemistry. For several years, he was sales-manager of the Prosperity Company, Syracuse, N. Y., and more recently assistant to the vice president of American Machine and Metals, Inc. The Tolhurst plant is located in Troy, N. Y., with executive offices at 100 Sixth Avenue New York City.

May Buy Fleet of Trucks

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., April 4, 1932.—It is reported that officials of the Union Bag and Paper Company are contemplating the purchase of a fleet of trucks supplemented by several modern motorships in order to facilitate transportations of foreign pulp wood from the Port of Albany to this village. The corporation is among the numerous paper mills in Northern New York that claim that freight rates from the port terminal are excessive and beneficial results are claimed already from haulage by contracting truck firms. For the past few months the company has utilized hired trucks exclusively and the new arrangement is said to have proven satisfactory from an economical standpoint.

A lively struggle is now under way between railroads and truck concerns to obtain the 1932 business from the Port of Albany. The Delaware & Hudson Company has reduced its rates on pulp wood shipments from that area and the new schedules are said to compete favorably with truck shipments. Officials of the Port Commission are said to favor rail transportation.

During the past week a long line of freight cars loaded with Swedish pulp wood for mills in this section was started on the journey to its final destination.

H. I. Prankard Resigns

COHOES, N. Y., March 28, 1932.—H. I. Prankard has resigned as vice president and sales manager of Mohawk Paper Mills, Inc., Cohoes, N. J.

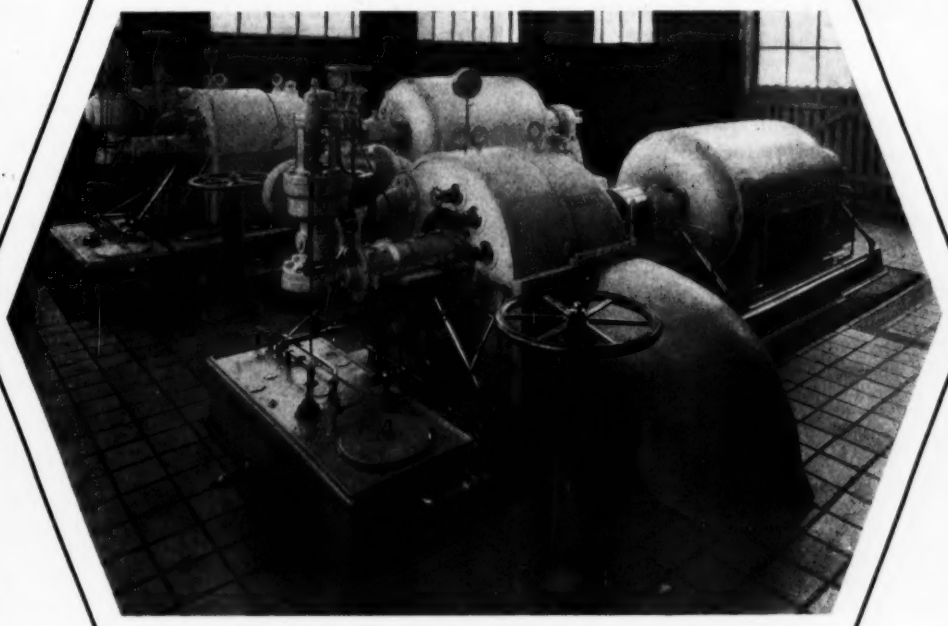
He has had an extensive experience in the manufacture and sale of paper, particularly special papers in colors and from boyhood has been engaged in this work and created many grades which have become standard papers in the converter and jobber field.

Mr. Prankard has made and kept a host of friends throughout the industry who wish him success in any connection he may make.

New Lavino Brick Bulletin

E. J. Lavino & Co., pioneers in chrome refractories, of Bullitt Building, Philadelphia, Pa., have just issued a new bulletin describing and illustrating "Improved Lavino Chrome Brick." Outstanding advantages of the Improved Lavino Chrome Brick include less spalling and cracking, greater resistance to penetration of destructive elements, higher hot load strength, and greater resistance to abrasion and erosion. Copies of the bulletin may be obtained upon application.

TERRY



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CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Erie, Pa.—The Hammermill Paper Company, East Lake Road, has approved plans for a new addition to its mill, consisting of a one-story reinforced-concrete unit, 130 x 260 feet. Bids have been asked on general contract and it is proposed to begin work at an early date. The expansion is reported to cost close to $100,000, with equipment.

Waynesboro, Va.—The DuPont Rayon Company, Waynesboro, is planning alterations and improvements at its local cellulose rayon mill, including annual overhauling of machinery and equipment at the plant. It is expected to close down the mill in the near future for about four weeks to carry out the program.

New York, N. Y.—A. Hendon & Son, Inc., has been incorporated with a capital of $20,000, to take over and expand company of same name, with local plant at 186 West Fourth street, manufacturer of paper boxes and containers. Incorporators of the new company include Edward M. Edenbaum and A. Rotwein.

Canton, N. C.—The Champion Fiber Company is completing work on new additions to its mill, in course of construction for a number of months past, and plan to place the units in service at an early date. The expansion consists of a main one-story unit, 110 x 352 feet, to be used for extensions in the machine division; four-story unit, 110 x 120 feet, for a beater department; three-story mill, 126 x 208 feet, to be used as a finishing department. The new structures will increase the working force by about 125 employees, and are estimated to develop about 70 tons additional capacity. The program represents an investment reported at close to $2,000,000, and has run about sixty days ahead of estimated time of completion. It is understood that about $200,000 is estimated to have been saved by carrying out the work at the present time. The general contract has been in charge of the Morton C. Tuttle Company, 31 St. James street, Boston, Mass. New paper-making machinery has been furnished by the Pusey & Jones Corporation, Wilmington, Del.

Hopewell, Va.—The pumping plant of the Hummel-Ross Fibre Corporation, Hopewell, on the St. James River, was recently damaged by fire. It is proposed to rebuild the unit at an early date. An official estimate of loss has not been announced.

Plainville, Conn.—The Connecticut Paper Products, Inc., Plainville, recently organized with capital of $100,000, to manufacture paper boxes and containers, paper bags, and kindred specialties, will be headed by Fred Bullen, Plainville, vice-president, and C. H. Newton, Plainville, secretary and treasurer. It is understood that a local plant will be operated at an early date.

Great Bend, N. Y.—The Sherman Paper Company, Watertown, N. Y., formerly the Taggarts Paper Company, is running on a full time production schedule at its mills at Great Bend and Felt's Mills, N. Y., giving employment to close to normal working quotas.

Rochester, N. Y.—The Flower City Tissue Mills Company, Driving Park avenue, has arranged for a change in company capitalization from $500,000 to $50,000.

New York, N. Y.—The R. & B. Paper Box Company has been organized by Abraham Bistrovich, 1013 Prospect street, Hillside, N. J., and associates, to operate a local plant for the manufacture of paper boxes and cartons, folding boxes, etc.

Port Arthur, Ont.—Fire recently damaged the mill of the Thunder Paper Company, Ltd., Port Arthur, with loss reported from $10,000 to $15,000. The damage will be replaced.

Kapuskasing, Ont.—The Northern Ontario China Clay Corporation, Ltd., Toronto, Ont. organized a number of months ago to operate clay properties for paper and ceramic service in the vicinity of Smoky Falls, north of Kepuskasing, is said to be arranging for early production at the mines, and has installed tractors and other equipment for that purpose, under the direction of C. McCarthy, who originally located the properties. It is understood that the first development will approximate about 1000 tons for different purposes, to be followed by regular commercial output. The material will be hauled about 7 miles to the railroad at Smoky Falls, the northern terminus of the line of the Spruce Falls Power & Paper Company.

Freeman, Ont.—The Paper Makers' Chemical Corporation, Ltd., Toronto, Ont., an interest of the Paper Makers' Chemical Company, Kalamazoo, Mich., and Wilmington, Del., has succeeded to the Vera Chemical Company of Canada, Ltd., with plant at Freeman. The new organization will continue in the same line for rosin size, paper fillers, sulphonated tallow, oils, etc., for the paper trade. Both companies noted are controlled by the Hercules Powder Company, Wilmington.

Corner Brook, N. F.—The International Power & Paper Company of Newfoundland, Ltd., closed its mill down for a few days late in March, owing to difference with a number of men working on the paper machines. It is understood that the plant has now resumed on regular basis.

New Companies

New York, N. Y.—Foil Papers, Inc., has been incorporated with a capital of 200 shares of stock, no par value, to manufacture and deal in paper products. The incorporators are Eugene M. Ritchie, 148-25 Eighty-eighth avenue, Jamaica, L. I.; and T. Charles LeRoux, 189-20 Quencer road, St. Albans, N. Y.

Detroit, Mich.—Paper Merchants, Inc., 1705 First

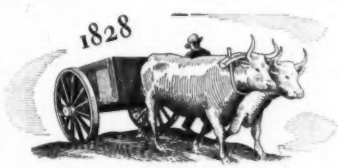
★

A Dream made into REALITY

— — — *under the flickering light of fish oil lamps*

A transplanted schoolhouse for a factory . . . hand tools and a power lathe for equipment . . . oxen to bring castings from 20 miles away . . . simple calipers for all measurements . . . pine boards for drawings . . . amid surroundings such as these was born at South Windham in 1828 the first American built Fourdrinier machine.

Today—104 years later—the old has given way to the new. The Smith & Winchester Manufacturing Company . . . a modern factory of brick and steel . . . the latest production machinery . . . a complete foundry . . . overhead traveling cranes . . . men reared amid the background of the old with the facilities of the new to meet all demands for paper machinery.



For the purchaser of truly fine paper mill machinery, there is no more logical place to buy *paper machines*, *cutters*, and *paper bag machines* than from this organization.

Call in a Smith & Winchester engineer on your next job—no obligation.

MAKERS: *Fourdriniers, cylinder and wet machines; binders' board machines; paper bag machines; undercut trimmers; Rainstorm shower pipes; slitters and calenders; reels and winders; rolls (bronze and wood); Jordans and Jordan fillings; stuff and fan pumps; castings from our own or customers' patterns.*

BUILDERS OF THE FIRST AMERICAN FOURDRINIER MACHINE

★

The SMITH & WINCHESTER *Manufacturing Company*

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

367

street, has been organized with a capital of 50,000 shares of stock, no par value, to deal in paper goods of various kinds. Howard M. Davidson, 2949 West Grand boulevard, Detroit, is principal incorporator.

New York, N. Y.—The Foil Products Corporation has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in paper goods of various kinds. The incorporators include Harry Heiman, 135 East Ninety-fourth street, Brooklyn; and Henry Amelkin, 32 Chester street, Brooklyn.

New York, N. Y.—The Cross Siclaire Corporation has been organized with a capital of 100 shares of stock, no par value, to deal in paper products of different kinds. The company will be represented by William S. Glickman, 2 Lafayette street, New York, an attorney.

New York, N. Y.—The Superior Trading Corporation has been incorporated with a capital of 100 shares of stock, no par value, to manufacture and deal in paper boxes, cartons and other containers. The principal incorporators are M. G. Tooran and L. G. Feinberg, 220 Broadway, New York. The company will be represented by the Exco Lawyers Albany Service, 115 Nassau street, New York.

New Pressure Controller

The Mason Regulator Company of Boston announce a perfected instrument type, non-recording pressure controller.

This precision instrument is pictured in the accompanying illustration. It has been developed in, and for the process industries.

Many advanced features of construction are utilized in this Mason Pressure Controller. The heart of this instrument is the fully balanced compound pilot valve which permits it to be used for remote control service. Further developments are seen in simplified methods of adjustment.

NON-RECORDING PRECISION CONTROLLER

Like other Mason Instruments, this controller provides the long-sought straight line function. This means that definite increments of movement of the control element produce uniform increments of movement of the diaphragm control valve.

A Descriptive Bulletin No. 401 may be obtained from the Mason Regulator Company, 1190 Adams street, Boston, Mass.

Swedish Pulp Sales Decline

WASHINGTON, D. C., March 30, 1932—Swedish wood pulp sales underwent a decline during the first half of March according to trade reports, the market for both chemical and mechanical pulps being extremely quiet for this time of year.

The paper market followed closely along the same lines. The market for wrapping paper is strongly affected by the uncertainty of the tariff situation in the United Kingdom, which is the leading customer for this class of paper. While the present duty of 50 per cent will remain in effect only until the middle of May, it is anticipated that it will be followed by a rate of as high as 25 per cent rather than the general tariff of 10 per cent.

OUTLOOK FOR PAPER BRIGHTENING

(Continued from page 15)

of the grippe during the past week. He returned to his office on March 28 none the worse for wear.

Warren's supplement to Catalog No. 47, listing new grades and new prices on Warren Book papers was issued this week in the Chicago territory by the Swigart Paper Company. The new grades included "Library Text"; "Library Super-Plate"; "New Cumberland English Finish"; "New Cumberland Super Plate"; "New New England English Finish" and "New New England Super". Each grade was described and its practical value in halftone reproduction demonstrated on sheets of 8½ x 11 size of the various stocks.

The Northwest Paper Company, with offices at 537 South Dearborn street, Chicago, has added W. B. McEachern to its sales personnel, the experienced paper man to devote his time to paper sales and promotional work in the Chicago district. Mr. McEachern was formerly with the W. A. Johns Paper Company, of Chicago, and has also had valuable experience with the International Paper Company. He is especially well versed in the fine and wrapping paper fields.

Advertising's part in raising the standard of living is the theme of Westvaco Inspirations for Printers, Number 73, the product of the West Virginia Pulp and Paper Company, issued in Chicago from offices at 35 East Wacker Drive. The first few pages of the current issue are devoted to remarkable four-color process illustrations from travel companies, while the use of black and white is featured in the pages immediately following. Other interesting discussions of value include "The Magic Line"; "Semi-Woodcut Effects"; "The Fine Art of Staging"; "Forgotten Fingers"; and "The Advertising Menagerie". The issue is printed partly on Marquette Enamel, and partly on Clear Spring Text, Wove and Clear Spring Text, Laid, India Tint.

The Swigart Paper Company is author of a convincing piece of direct mail literature printed on a strong yellow and with green and lavender colors to carry the attention of some seasonal copy entitled "Spring—The Awakening of New Life." Copy discusses the need of making full preparations for Spring business and talks directly to the "Wholesaler, Retailer, Advertising Agency and Printer" about Swigart's Sample System and the thousands of samples of all kinds of papers in many colors, finishes, sizes and weights that are available and waiting for the inspection of buyers.

The most recent check-up on the claim of the Conway Building, 111 West Washington street, that it is the "Paper Center of the Middle West," seems to be substantiated. Fifty-eight paper companies are represented in the roster of tenants and very few floors in the big building do not house some firm connected with the paper industry.

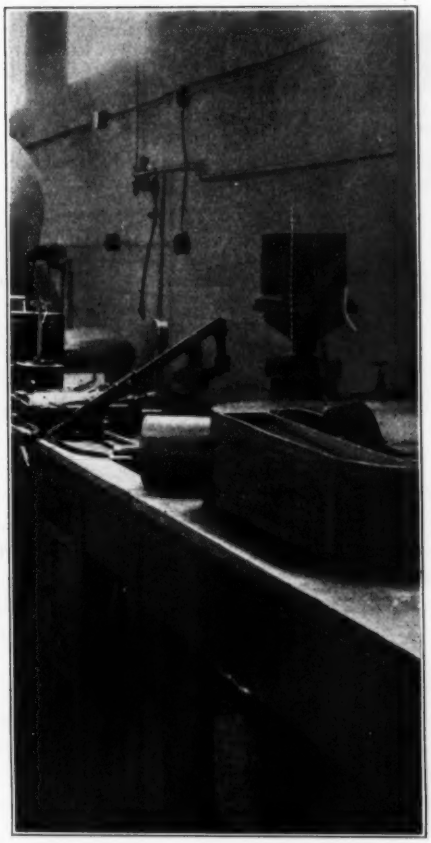
Lake States TAPPI Section Meeting

The Lake States Section of the Technical Association of the Pulp and Paper Industry will meet on April 12th at 6:30 P. M., at the Conway Hotel, Appleton, Wis.

The speaker will be P. M. Foster of the Beloit Iron Works, Beloit, Wis., who will discuss, "Recent Trends in Paper Machine Design and Equipment." The talk will be illustrated with moving pictures.

Allen Abrams, technical director of the Marathon Paper Mills Company, Rothschild, Wis., and president of the Technical Association, will also address the meeting.

Test Your IDEAS —for— New Processes New Products New Quality



THE best opportunities for developing the things needed for progress in the paper industry today lie in the laboratory.

You have *ideas* about new products for stimulating sales and increasing profits. You have *ideas* about new processes for lowering the cost of manufacture. You have *ideas* about improving the quality of your products.

However, most of these ideas—before they can become practical realities—must be *tested* and *proved*. The place for doing it is the laboratory—a laboratory equipped to make tests comparable to actual mill runs.

Realizing the vital need for creative work in the paper industry, we have spared no effort or expense during the past decade in developing efficient, paper-making equipment for laboratory use. As a result, Valley is today recognized as headquarters for modern laboratory equipment.

Beater
Sheet Mould
Hydraulic Press
Hot Plate
Size Tester
Drying Oven
Plain Flat Screen
Couch Roll
Jordan
Four Section Fractionating Screen

Write for our special bulletin outlining the functions and requirements of a modern laboratory and also describing Valley Laboratory Equipment. Address the Valley Iron Works Co., Appleton, Wis.

VALLEY

Equipment for Paper and Pulp Mills

Plant: Appleton, Wis.
New York Office: 350 Madison Ave.
Western Office—355 Everett St., Portland, Ore.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

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OUTLOOK FOR PAPER IMPROVES

An improved outlook for paper, a less severe reaction during the depression than in other basic industries and a decline in the number of insolvencies among paper concerns in 1931 are among the salient features brought out in a lengthy special survey of the paper industry just issued by R. G. Dun & Co.

The survey in part says that paper ranks seventh among the major industries of the United States. It ranks first in the important part it plays in the marketing of nearly all commodities. Without it, many a product, whose chief appeal has been its attractive covering, would be destined to go unnoticed. Its merits, too, would be unsung, were it not for the printed words in well-turned phrases on the highly-coated paper of magazines that proclaim its excellences to the world amid an array of color and line that has been classed as one of the modern arts.

Who could venture to visualize the disrupted state of business today if paper suddenly were to be unavailable? Just how much would the transmission of information be affected, despite the wonders of the telephone, the telegraph and the radio? How long before the dissemination of knowledge would revert to oral heritage and educational and judicial adjustment be left to unschooled leaders in scattered individual groups?

Probably a clearer idea of the importance of paper to the conduct of daily life can be obtained from statistics which show that approximately 23,530,000,000 pounds of paper were consumed in the United States in 1931.

With its close identity to the course of general commercial and industrial activity, it would have been impossible for the consumption of paper not to have declined last year. As a whole, however, the slump in production and distribution was not so severe as that recorded for some of the other basic industries, nor did it spread to all classes of paper. For, the fine paper market was fairly stable all year, production of paper board held closely to the 1930 level, and there was a normal and constant demand for kraft paper.

Although 86 paper and pulp mills in the United States were idle at the close of 1931, the financial condition of the industry was sound. Collections with the mills generally were good throughout the year, and in some districts were entirely satisfactory. The average well-established paper jobbers paid their bills promptly, the bad debt losses being confined to small jobbers located in the large distributing centers.

In one important producing district, it was reported that at the close of 1931 about 98.3 per cent of the accounts were less than thirty days old; 5 per cent were less than sixty days old; 6 per cent less than ninety days old; and only 6 per cent more than 90 days old.

In 1927, when production was fully 15 per cent greater than it was in 1931, insolvencies among paper manufacturers totalled 5, with liabilities reaching $2,016,000. In 1931, there was only 1 failure in the manufacturers' group, with liabilities of $800,000. There were 19 wholesalers and retailers of paper included in Dun's insolvency record in 1927, with liabilities totalling $1,128,800; whereas in 1931, there were only 6, and liabilities were but $192,100.

Failures in both the manufacturing and distributing groups were the lowest in 1931 for any twleve-month period in the last five years, according to the special insolvency compilation of the paper industry made by R. G. Dun & Co.

During the past few weeks, there has been a definite trend toward higher prices for the various grades of paper. The kraft prices are holding firmly at the higher level which has been in effect for a period sufficiently long to test the strength of the new quotations. Glassine prices also are higher and the recent increase in some grades of bond seem to be well accepted. Prices of news print continue weak because of the decline in the volume of news print used, due to the contraction of advertising requirements, along with the existence of excessive production capacity.

With general improvement marking developments during the first quarter, the industry is looking ahead to further expansion as the Spring progresses. Though demand continues to be for small lots for retailers, wholesalers report a growing volume of contracts for both fine paper and wrapping grades. Manufacturers are holding operations to the broader scale of the last few weeks, though future orders are coming slowly and are not of seasonal proportions. The average mill now is on an increased production of 10 to 20 per cent over the schedules obtaining during the early weeks of the year.

Converters of paper products, such as corrugated and fiber containers, bag manufacturers, and those paper houses conducting roll and sheeting divisions, are increasing their schedules as seasonal activity gains. Such lines as waxing, grease-proof and glassine are moving fairly well, while tissue-manufacturing plants are enjoying a steady business under a good demand for specialty lines.

New TAPPI Members

The Technical Association of the Pulp and Paper Industry announces the following elections:

Sylvester Boyer, technical director of the S. D. Warren Company, Cumberland Mills, Maine, is a graduate of Westminster College and Harvard University. Mr. Boyer was formerly an instructor at Purdue University and worked for the Solvay Process Company, Syracuse, and the General Electric Company at Schenectady.

J. Benjamin Beck, chemist of the E. B. Eddy Company, Ltd., Hull, P. Q. has been transferred from Junior to Active membership in the Technical Association.

William E. Breitenbach, chemist of the Grays Harbor Pulp and Paper Company, Hoquiam, Wash., has been transferred from the associate to active association membership.

Walter C. Christensen, chief chemist of the Hoberg Paper and Fibre Company, Green Bay, Wis.

George I. Cooper, formerly chemist at the Worcester Paper Box Company, Worcester, Mass., is a graduate of Northeastern University and was for seven years a research chemist for the Dennison Manufacturing Company, Framingham, Mass.

M. D. Coulter, industrial fellow at the Mellon Institute of Industrial Research, Pittsburgh, Pa., is a graduate of Denison University and received his Ph.D. degree from Ohio State University. Doctor Coulter was formerly an assistant professor at Louisiana State University and a research chemist for the Celotex Company, Chicago, Ill.

Harry C. Eastman, president of H. C. Eastman Inc., consulting engineers, in the pulp, paper and printing industries, Wilmington, Del., is a graduate of the U. S. Military Academy, West Point, N. Y., and the University of London.

Carl F. Richter, secretary of the Stebbins Engineering and Manufacturing Company, Watertown, N. Y., has been transferred from associate to active membership in the Technical Association.

Select Paper from First Paper Mill Job

Stone & Webster, Inc., 149 Federal street, Boston, Mass., consulting engineers, are issuing a book recording the history and activities of the organization. The volume will be printed on paper from the mill of the S. D. Warren Company, for whose original mill at Saccarappa, Me., now known as Westbrook, the Stone & Webster organization completed its first hydroelectric electric power development in 1890, 42 years ago. The installation consisted of a direct-current generating unit, driven by waterwheel, and transmission system. The power developed was only 400 horsepower and the transmission line about one mile in length. This pioneering development was followed by the building of a larger mill for the Warren company soon after, in which alternating current energy was utilized. Since that time, Stone & Webster, Inc., have designed and constructed hydro-electric power plants with a gross capacity of 1,235,000 horsepower, or about 8 per cent of the nation's total.

To Represent Watervliet Paper Co.

The Watervliet Paper Company of Watervliet, Mich., Manufacturers of Coated Book and Offet Papers, has completed arrangements for distribution of its products in Philadelphia by Paper Merchants, Incorporated. Bainbridge and Foldette Enamel, two of Watervliet's most popular items, are carried in stock.

Plans for Superintendents Meeting

BUFFALO, N. Y., April 4, 1932—Fred. J. Rooney of Lockport today announced the general plan for the paper makers convention which is to be held June 2, 3 and 4 at the Hotel Statler in Buffalo, N. Y. This meeting will be held under the auspices of the American Pulp and Paper Mill Superintendents Association, composed of operating executives of pulp and paper mills throughout North America.

According to Mr. Rooney, who is a past president of the association and general chairman of the convention committee, the program will include the presentation of papers by recognized authorities, as well as general discussions on:

New developments in pulp and paper making equipment.
Modern methods of mill and power plant operation.
Technical control of processes.
Maintenance factors.
Relation of production to costs.
Superintendents responsibilities to management.

Specific problems relating to mechanical and chemical pulp, book paper, fine paper, tissue paper and paper board.

There will also be a round table session for the thrashing out of specific problems presented by the superintendents at the convention.

Local committees have been formed in all of the important paper making states to make arrangement for the transportation of large delegations of superintendents and other paper and pulp mill executives to and from the convention.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 6, 1932—The Government Printing Office has received the following bids for 2,000 sheets of buff detail drawing paper: R. P. Andrews Paper Company, at 6.45 cents and 5.5 cents per sheet; Eugene Dietzgen Company, 6.25 cents; Keuffel & Esser Company, 4.9 cents, 5.9 cents and 8.8 cents; George F. Muth & Company, 4.8 cents and 8.6 cents; The C. F. Pease Company, 6.695 cents, and 11.705 cents less 2%; J. H. Weil & Co., 3.8 cents and 5.06 cents.

The following bids were also received for 1,500 sheets of bristol board: The Whitaker Paper Company, at 1.5 cents per pound; and R. P. Andrews Paper Company at 1.26 cents.

The Government Printing Office has received the following bids for 1,000 pounds of red sterotype molding paper; Cauthorne Paper Company, at 10.4 cents per pound; R. P. Andrews Paper Company, 20 cents; Barton Duer & Koch Paper Company, 9 cents, and Old Dominion Paper Company, 11.29 cents.

The Aetna Paper Company will furnish 9,940 pounds (75,000 sheets) of 50 per cent rag, 26 x 34 white natural tint passport paper at 11.97 cents per pound, bids for which were received on March 21.

Oxford Mill Manager Resigns

RUMFORD, Me., March 25, 1932—James W. Harris, mill manager of the Oxford Paper Company here for several years, and with the organization for nearly a quarter of a century, has tendered his resignation. He will be succeeded by Theodore F. Spear, who has been assistant mill manager. Mr. Harris was given a dinner recently by a large group of friends and business associates at the Oxford Company House.

LIQUID CHLORINE

Ask a purchaser of chlorine why he prefers Mathieson...why he orders from the same source year after year. Here's the answer you'll probably receive: "I buy Liquid Chlorine from Mathieson because my experience tells me that I'll receive a high-grade product at a price that is fair to both consumer and producer. I also know that I am dealing with one of the oldest and largest chlorine manufacturers in America — an organization equipped both with experience and facilities to meet every fair requirement for service."

Let us quote on your requirements.

The MATHIESON ALKALI WORKS (Inc.)
250 Park Avenue New York, N. Y.

Soda Ash...Liquid Chlorine...Bicarbonate of Soda...HTH (Hypochlorite)...Caustic Soda...Bleaching Powder...Ammonia, Anhydrous and Aqua...PURITE Fused Soda Ash...Solid Carbon Dioxide

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

The charge for the photostat service is: 9 x 11 inches—18 cents per page, 18 x 11 inches—35 cents per page, 22 x 18 inches—70 cents per page, minimum charge, 50 cents.

Payment should be made upon receipt of invoice.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphate Process

Corrosion Damage in Sulphate Pulp Digesters. C. Benedicks. Wochbl Papierfabr. 62, No. 39:926 (Sept. 26, 1931).—It has been noticed in sulphate digesters that two different types of deposits are found, a brittle and undesired one which contains only calcium carbonate, and a desired, solid coating which contains other crystalline and uncrystalline substances besides the calcium carbonate. The chipping off of the deposit takes place by mechanical action, i.e. the hammering action of the steam, and the sudden cooling off of the shell. The rigidity of the coating can be increased by the increase in sodium sulphate content of the liquor. By suitable inside coatings, i.e. zinc oxide and linseed oil, the shell can be protected.—J. F. O.

Sulphite Process

New Developments in Sulphite Cooking. A. H. Lundberg. Pulp Paper Mag. Can. 30:1291-1293 (Nov. 26, 1931); Paper Trade J. 93, No. 25:33-34 (Dec. 17, 1931).—A description of the Brobeck forced circulation system and discussion of its merits.—A. P.-C.

Thirty Years of Progress in the Sulphite Industry. Elliott R. Barker. Paper Trade J. 93, No. 27:33-38 (Dec. 31, 1931).—A. P.-C.

Sulphur, Pyrite, and Sulphite Pulp. R. E. Cooper. Paper Mill 54, No. 49:8, 18, 24-25 (Dec. 5, 1931); Pulp Paper Mag. Can. 31:1390-1393 (Dec. 24, 1931).—A comparison of methods and equipment used for burning sulphur and for burning pyrites, and of the results obtained showing the superiority of sulphur over pyrites for sulphite acid making.—A. P.-C.

Utilization of Flotation Pyrites in Paper Industry. S. Rozanov. Bum. Prom. 10, No. 8:6-16 (1931); C. A. 25:596.—A discussion is given of the technical features of utilization in the paper industry of pyrite residues obtained in flotation of pyrites for copper.—C. J. W.

Analysis of Sulphur-Burner Gas (Sulphur Dioxide Gas). Anon. Paper Trade J. 93, No. 25:32 (Dec. 17, 1931).—A description of the tentative official TAPPI methods for sulphur dioxide and sulphur trioxide.—A. P.-C.

Analysis of Bisulphite Liquor (Cooking Acid). Anon. Paper Trade J. 93, No. 26:29-30 (Dec. 24, 1931).—A description of the tentative official TAPPI methods for volumetric control analysis (total, free and combined sulphur dioxide) and for complete gravimetric analysis (silica, iron oxide and alumina, calcium oxide, and magnesium oxide).—A. P.-C.

Indirect Heating and Forced Circulation in Alkaline and Sulphite Pulping. C. J. Christiansen. Paper Mill 55, No. 1:4 (Jan. 2, 1932).—A.P.-C.

Sulphite Cooking Liquor. George A. Richter assignor to Brown Co. U. S. pat. 1,821,322 (Sept. 1, 1931).—A cooking liquor is used substantially saturated with alkaline-earth metal bisulphite, such as that of calcium, containing also at least 1% of sulphur dioxide in the form of alkali metal bisulphite.—A. P.-C.

Process of and Apparatus for Treating Fibrous Materials for Pulping Purposes. John H. Wallin. U. S. pat. 1,820,994 (Sept. 1, 1931).—The digesting liquor (which may be acid sulphite solution) is injected into the digester by means of a mixture of steam and gas produced by the digesting operation, and circulation of the digesting liquor is effected through the fibrous material in the digester.—A. P.-C.

Reuse of Relief and Waste Liquors in Sulphite Cooking Acid. G. H. Chidester, C. E. Hrubesky and J. N. McGovern. Paper Trade J. 93, No. 21:42-46 (Nov. 19, 1931).—Experimental sulphite cooks showed that cooking acid containing considerable amounts of either late relief liquor or waste liquor does not affect the quality of the pulp, providing the color of the reused liquor is not too dark.—A. P.-C.

Fiber Liberation from Raw Cellulosic Materials. George A. Richter assignor to Brown Co. U. S. pat. 1,819,003 (Aug. 18, 1931).—Raw material such as wood is treated with a sulphurous acid liquor and with an inorganic acid such as a 0.2 to 1 per cent sulphuric acid solution short of fiber liberation, and the acid-treated material is then further digested with an alkaline liquor to complete the fiber liberation.—A. P.-C.

Cellulosic Material for Rayon Manufacture. Charles A. Blodgett and Hugo H. Hanson assignors to Eastern Manufacturing Co. U. S. pat. 1,822,126 (Sept. 8, 1931).—Wood is heated for several hours at temperatures progressively rising, up to about

45°C. under a pressure of 60 to 70 lbs. per sq. in., in a closed container which holds sulphite liquor containing free sluphur dioxide in the initial proportion of 1 part of air-dry wood to about 5 parts of liquor. The cellulosic mass formed is washed and is then boiled and agitated in a solution containing caustic soda, sodium sulphide and sodium sulphite at elevated temperature and pressure, and is further washed and freed from water.—A. P.-C.

Production of Pulp of High Alpha-Cellulose Content. George A. Richter assignor to Brown Co. U. S. pat. 1,819,002 (Aug. 18, 1931).—Raw cellulosic material such as wood is cooked short of fiber liberation in superheated water and in acid sulphite liquor and is then cooked to complete fiber liberation in an alkaline liquor.—A. P.-C.

Concerning the Selective Absorption of Aqueous Solutions in Wood Fibers. Alf Ekensyam. Zellstoff Papier 11, No. 8:465 (Aug., 1931).—Penetration experiments with solutions of salts at temperatures over 100°C., shows that the solutions do not penetrate into the wood without a change in concentration taking place, which change is different for various salts. Sodium chloride solution penetrates into the wood seemingly unchanged. With phosphate solutions, considerably less phosphate penetrates into the wood than corresponds to the concentration of the solution. Bisulphite also penetrates the wood with difficulty, hence the necessity for a slow temperature rise at the beginning of a sulphite cook. The bisulphite penetration shows that the substances absorbed from the wood by the bisulphite solution can change in composition for various kinds of wood. Much more magnesium is taken up by the heart wood of pine from a solution of magnesium bisulphite with free sulphurous acid than from HSO_3. This is probably related to the resenic acid content of the pine wood. With spruce wood, practically pure magnesium bisulphite is absorbed but no detectable amount of free sulphurous acid.—J. F. O.

Cooking of Pine by The Sulphite Method. V. Yakimanskii. Bum Prom. 10, No. 7:18-23 (1932); C. A. 26:594.—Experiments were carried out to determine the optimum condition for impregnation of lignin in the pines of the Kaluga district and Leningrad region and spruce with sulphite liquor of varied concentrations. The tests were made under pressure with and without addition of sodium acetate, sodium phosphate, calcium oxide and magnesium oxide and the factors of time and temperature investigated.—C. J. W.

Sulphite Pulp from Pine Wood. O. Routala and J. Sevon. Cellulosechemie, 12, No. 5:131-137 (May 3, 1931).—A suitable source for the weak acids, whose sodium salt is favorable for the sulphite cooking of wood, is the sulphite waste liquors. Cooking experiments with the addition of waste liquors gives pulps whose properties are strongly dependent upon the method of cooking. The undesired coloration of the pulp takes place when the available sulphite is exhausted. The use of sulphite waste liquor from which the calcium is precipitated by sodium sulphate is still more favorable.—J. F. O.

Influence of the Sulphite Cooking on the Length of the Pulp Fibers. Aleks Lampen. Zellstoff Papier 11, No. 9:521-524 (Sept., 1931).—The author investigates the question, of whether the wood fibers are shortened during the cooking process. He shows by carefully carried out experiments that this is not the case. Comparison is made with the drastic treatment given to the fibers in beaters.—J. F. O.

Influence of Sulphite Cooking on the Weight of the Pulp Fibers. Aleks Lampen and Ilmari Koskinen. Zellstoff Papier 11, No. 10:573-75 (Oct., 1931).—The authors investigate the decrease in weight of the pulp fibers during the course of the cooking. The weight of the pulp fiber decrease because of the violent decomposition in the digester and a further decrease in weight takes place during the bleaching. The authors have worked out an excellent method for counting the fibers contained in one gram which for bleached pulp has a value of over 2½ million fibers per gram pulp.—J. F. O.

Sulphite Waste Liquors

New Reaction of Sulphite Cellulose Extracts. L. Meunier and Khoa Le Viet. Cuir Tech. 20:312 (1931); C. A. 26:620.—By use of the fluorescence of sulphite cellulose under ultra-violet a simple method is described for determining sulphite cellulose in commercial tanning extracts. A small capsule containing 5-10 cc. *N* caustic is placed under Wood's lamp; 2-3 drops of solution to be examined is dropped into this capsule.—C. J. W.

Sulphite Waste Liquor Kills Certain Fungi. Clara W. Fritz. Pulp Paper Mag. Can. 31:1353-1354 (Dec. 10, 1931).—*Poria Subacida* and *Trametes pini* were killed by a 20 per cent solution of sulphite waste liquor; *Polysporus abietinus, Polysporus balsameus and Stereum sanguinolentum* resisted the action of a 20 per cent solution, but were killed by a 40 per cent solution; *Fomes pinicola* resisted the action of a 40 per cent solution but was killed by a 60 per cent solution. Chips of pulpwood dipped even in a 20 per cent solution of sulphite waste liquor were badly discolored.—A. P.-C.

Evaporation of Sulphite Waste Liquor with an Introduction to its Historical Growth. Sembritzki. Wochbl Papierfabr. 62, No. 34:809-811 (July 22, 1931).—The evaporation of waste sulphite liquor was carried out mostly because of legal grounds. The principle of evaporation by means of heat and vacuum pumps as well as vacuum evaporation is described.—J. F. O.

Device for the Removal of the Rosin Floating about in the Stock During the Preparation of Sulphite Pulp. A. M. R. Karlstrom, Hylterbruk. Swed. pat. 71,454 (Aug. 19, 1927).—The device consists of a foam board placed in a certain position in the rifflers or sand catcher.—J. F. O.

Beating

Standardization of the Productivity of Beaters. V. Gulyanitzkii. Bum. Prom. 10, No. 3:9-12 (1931); C. A. 26:596.—The functions of the drain tables in dewatering of pulp were observed and calculated. A reply is given in No. 4:29-33 (1931).—C. J. W.

Machine for the Beating of Paper Stock. A. B. Karlstads Mek. Verkstad Karlstad. Swed. pat. 71,353 (Nov. 27, 1925).—A cylindrical housing provided with a stock inlet and outlet contains one or more plates provided with holes for the stock. A shaft provided with knife discs passes through the cylinder, and by its rotation, the stock which comes between it and the cylinder is crushed and beaten.—J. F. O.

"Drehkreuzmuhl" revolving cross beater in the paper industry. U. Kirchner & G. Strecker. Wochbl. Papierfabr. 62, No. 37:879-883; No. 40:944-949 (Sept. 12, Oct. 3, 1931).—The requirement for the ideal beater is first mentioned, and the shortcomings and very low efficiency of the ordinary beater are given. The construction and operation of the rod mill is discussed; the beating done in this beater is mostly crushing. The beater designed by the authors consists of a body revolving within a cylindrical housing. The revolving body is in the form of a cross with slabs of stone fastened to the ends of the cross. Due to centrifugal forces these stones, fastened in a certain manner, press and grind against the fibers during rotation.—J. F. O.

Miscellaneous Processes

Loss in Yield and Quality of Pulp in Digesters which were not Blown Clean. Otto Kress, Karl E. Buff and Harry J. Irwin. Paper Trade J. 93, No. 23:36-40 (Dec. 3, 1931).—When pulp is recooked with strong liquor such as was used to produce it, the yield, strength and chemical constants are reduced.—A. P.-C.

Composition for Treating Grass and Wood Pulp. Joseph F. King. U. S. pat. 1,822,779 (Sept. 8, 1931).—A composition for treating pulp to produce dull-finish rayon is formed from 8 parts of sodium perborate, 2 parts of magnesium carbonate, 2 parts of crystalline magnesium sulphate, 1 part each of coconut oil soap, sodium hydrosulphite, barley malt and sodium bisulphite.—A. P.-C.

Influence of the Quality of Water and Hydrochloric Acid on the Ash Content of Viscose Cellulose. I. Zemskov. Bum. Prom. 10, No. 4:53-56 (1931); C. A. 26:592—The inorganic impurities

in water (calcium) and in hydrochloric acid (sulphur and iron) used in the production of pulp increase the ash content of the latter and make it unsuited for viscose manufacture.—C.J.W.

Separation of Cellulose and Incrusting Substances in Different Woods. T. Kleinert and K. Tayemthal. Z. Agnew. Chem. 44:788-791 (1931); C. A. 26:590.—A nearly complete disintegration of wood can be effected with a mixture of alcohol and water. Most of the lignin and carbohydrates go into solution, leaving the cellulose nearly pure. The decomposition takes place rapidly at 180 deg. C., without harm to the cellulose. Water alone dissolves practically no lignin but hydrolyzes the accompanying carbohydrates; absolute alcohol dissolves very little lignin and very little carbohydrates. There is but little difference in the time or temperature on digestion of different woods; hard woods break down more rapidly than soft woods. Increase of hydrogen ion concentration accelerates decomposition but also accelerates cellulose destruction if the concentration exceeds $N/250$. The mechanism of the decomposition is discussed.—C. J. W.

Bleaching

Bleaching Sulphite Pulp with Chlorine Gas and with Calcium Hypochlorite. Herbert Rauchberg. Papier-Fabr. 29, No. 30: 490-497; No. 31:516-524; No. 32:535-541 (July 26, Aug. 2, 9, 1931). —An exhaustive treatise on the subject. The author begins with a resume of the work done on each method, giving numerous references, alkali and acid consumed during the bleaching, high consistency bleaching, heat balance, multiple stage bleaching, method and results of numerous chemical tests, etc.

There are two possibilities in bleaching, the complete removal of the incrustants with a more or less pure pulp, and obtaining a white pulp which still contains incrustants. Bleaching with chlorine gas is superior to calcium hypochlorite bleaching for ordinary pulp and especially for pulps free from incrustants. The advantages for chlorine gas bleaching is, lower chemical cost, much shorter bleaching time, lower construction cost, and more favorable properties of the pulp; the disadvantages are, more washing and the objectionable feature of having to work with chlorine gas.

Acid bleaching is quick but has the disadvantages of attacking the fibers and a larger consumption of chlorine is required. Hydrolysis of the cellulose does not take place in acid bleaching. The hastening of the bleaching with metallic catalysors acts similar to the addition of acid.

Multiple stage bleaching gives a 15 per cent saving of chlorine over the single stage. The first stage of multiple bleaching takes place very quickly, hence warming the pulp is uneconomic. Washing must be done between additions of bleach liquor if a saving of bleach is to be effected by multiple stage bleaching, by poor washing the chlorine consumption can be increased 30 per cent.—J. F. O.

Control of Chlorine Consumption in Bleaching Cellulose. N. Zotov, B. Milov and N. Timeshova. Bum. Prom. 10, no. 7:14-18 (1931); C. A. 26:595.—It is recommended that the degree of toughness (lignin content) of cellulose should be determined by the Sieber method for the control of active chlorine consumption in the bleaching of pulp and by the microscopic method for the pulp used in production in unbleached state.—C. J. W.

Changes of Sulphite Cellulose by Bleaching on the Rolls. D. Zhokhov and M. Makovetz kaya. Bum. Prom. 10, No. 2:62-67 (1931); C. A. 26:595.—The investigation of bleaching sulphite pulp with bleaching powder on concrete rolls leads to the following conclusions: The bleaching process shows two stages: Rapid separation of the residue of lignin and completion of the bleaching with oxidation of resinous matter, fats and hydrocarbons of non-ligneous origin. An increase of temperature of the bleaching mass tends to destruction of the cellular tissue.—C. J. W.

Bleaching Cellulose Pulp. John Schuber assignor to The Champion Fibre Co. U. S. pat. 1,820,502 (Aug. 25, 1931).—A mild treatment with an oxidizing bleaching agent such as bleaching powder is followed by a treatment with an acid reducing agent such as sulphur dioxide.—A. P.-C.

Dyeing

Process for the One-Sided Surface Coloring of Paper on the Paper Machine. Kristoffer Morech, Torp Bruk, Norway. Nor. pat. 49,073 (January 14, 1924).—The sheet which still contains from 30 to 40 per cent moisture content runs over a coloring roll, which is provided with a pressure roll on the top side of the sheet. The coloring roll possesses an elastic covering and the pressure maintained between this roll and the pressure roll is so large that eventual unevenness in the paper passing through the pair of rolls are pressed into the roll covering.—J. F. O.

Sizing

Light Sensitivity of Rosin Paper-Sizing Materials. Arthur E. Kimberly and J. F. G. Hicks. Bur. Standard J. Research 6:819-827 (1931).—The effects of light upon rosin and its compounds formed during paper sizing have been studied. Bleached and unbleached rosin is sensitive to light, darkening under the action of its rays. Ferrous resinate and rosin size contaminated with ferrous iron are also light-sensitive, probably because of the ease of photo-oxidation of ferrous iron. Ferric resinate, aluminum resinate and sodium resinate are unaffected. The yellowing of paper is explained in terms of light sensitivity of rosin and of ferrous iron.—A. P.-C.

Sizing. F. M. Williams. Paper Mill 54, No. 46:12, 24 (Nov. 14, 1931).—A brief outline of the merits of rosin as a paper-sizing agent. Figures are given showing the savings effected in the mill of the Sherman Paper Co. by using the Williams process (not described) for the preparation of the size emulsion.—A. P.-C.

pH Control in the Small Mill. George Engert. Paper Ind. 13:1104-1105 (Dec., 1931).—A brief discussion showing that even small mills can advantageously use the inexpensive pH sets now available for controlling their sizing operations.—A. P.-C.

Rosin-Containing Precipitates. S. R. H. Edge. World's Paper Trade Rev. 96:1868-1873 (Nov. 27, 1931).—The precipitate formed by diluting rosin solution with a large amount of hard water is shown to be a mixture of normal calcium resinate, ill-defined acid resinates and free rosin. The precipitates obtained by the addition of alum or of alum and sulphuric acid have ash contents and ether-solubilities of the same order as those of the precipitates obtained from sodium resinate solutions under the same conditions.—A. P.-C

Bewoid Process for Dispersion of Rosin for Paper Sizing. James Strachan. Paper Maker & Brit. Paper Trade J. 82, No. 3:lxiii-lxiv; No. 4: lxxxvi-lxxxviii; No. 5 TSI-3 (Sept.-Nov., 1931)—After a general review of the current theories of rosin sizing and the difficulties met with in practice, the author presents a new theory of the sizing process, which he claims explains fully these difficulties. A simple method of calculating the alum requirement in sizing operations is explained.—A. P.-C.

Use of Colloids in the Manufacture of Rosin Size. Paper Maker & Brit. Paper Trade J. 82, No. 6:TS29-TS30 (Dec. 1, 1931). —Physically "Bewoid" size is a dispersion or suspension of anhydrous rosin in water, kept in suspension by a protective colloid, viz., an alkaline dispersion of casein; chemically it consists of uncombined or unsaponified rosin mixed with water containing a solution of sodium caseinate with traces only of sodium resinate.—A. P.-C.

Solvent Sizing. Ogden Minton. Paper Mill 54, No. 52. 4, 11-14 (Dec. 26, 1931).—Maximum strength and sizing effects can be obtained by forming a sheet of unsized fibers, drying at low temperature in vacuum, spraying the sheet with a solution of rosin or other resin or gum in a water-immiscible solvent or passing it through a bath of such a solution, and drying in vacuum at low temperature, recovering the solvent for re-use. The most satisfactory solvent is probably ethylene dichloride.—A. P.-C.

Bewoid Process for Dispersion of Rosin for Paper Sizing. Bruno Weiger. Paper Maker & Brit. Paper Trade J. 82, No. 2: xxxiii-xxxiv (Aug. 1, 1931).—The Bewoid process produces a mechanical-celloidal-chemical dispersion of melted rosin without saponification. According to the theory of optimum size of particles, the optimum size of a particle of a rosin dispersion lies in

the condition between the colloidally and coarsely dispersed states. With 100 per cent free rosin content there is practically no sizing, and the optimum free rosin content is about 95 per cent, which would indicate that at least some aluminum resinate is necessary to obtain sizing effects.—A. P.-C.

Sizing of Print Paper with Sodium Silicate, Caustic Soda and Aluminum Sulphate. L. Kantor. Bum. Prom. 10, No. 3:15-17 (1931); C. A. 26:597.—A pulp is sized with a mixture of 1.2 per cent sodium silicate in four parts of water, 0.5 per cent sodium hydroxide (5 per cent solution) and 3.2 per cent of aluminium sulphate (6-8 deg. Baumé) (all weights on the basis of the weight of the fiber). The method produces better results and a considerable economy, than the use of rosin.—C. J. W.

Influence of Addition of Waster Glass and Alkali on the Sizing of Print and Writing Papers. Ya Khinchin. Bum. Prom. 10, no. 3:17-20 (1931).—A preliminary note.—C. J. W.

Fillers

Cornish China Clay. Ernest H. Davison. Eng. Mining J. 132:264-265 (1931); C. A. 26:272.—China clay has been worked in the West of England for about 100 years. It is graded into two qualities: bleaching or paper clay and pottery clay.—C. J. W.

Drying

Concerning the Drying of Paper and the Felt and the Removal of the Vapors by Means of Warm Air. Reinhard Schulze. Papier-Fabr. 29, No. 45:705-717, (Nov. 8, 1931).—A very comprehensive article which by means of curves, diagrams, tables and other data, discusses the influences of the vapors on the drying, devices for the removal of these vapors, keeping quality of the drier felt, comparison of the economics of cylinder and hot air drying, former advantages for the warm air system, further investigations of hot air drying, influence of the type of weave of the drier felt, wool felt drying on the drying cylinder.—J. F. O.

Board Dried with Flue Gas. Bum. Prom. 10, No. 4:57-58 (1931); Zellstoff Papier 11, No. 11:631 (Sept., 1931).—Flue gas instead of steam is used in a Russian mill for the drying of board. The flue gas comes from the boiler house in which anthracite coal is burned, the gas being conveyed to the drier by means of a blower and gas conduits.—J. F. O.

Process for the Drying of Cellulose by Means of Liquid Sulphurous Acid. Gustav Neumann, Berlin. Ger. pat. 524,185 (June 1, 1929).—The idea of the invention is to remove the water from the cellulose without heating. This is done by the use of sulphurous acid which removes the water by mixing with the cellulose.—J. F. O.

Drying with Super Heated Steam. E. Lutschen, Papier-Fabr. 29, No. 21:325-326 (May 24, 1931).—Although the following facts are true, they should not be used alone as arguments for the use of superheated steam. The wall temperature rises with increase in super heat at a determined pressure. The wall temperature rises with the pressure with a constant steam temperature. The coefficient of heat transfer from the steam to the wall is considerably less with superheated steam than with saturated steam. The heat capacity of the cylinders increases linearly with the wall temperature.—J. F. O.

High Vacuum in Paper Dryers. F. C. Farnsworth. Paper Mill 54, No. 47:10, 12, 18, 20 (Nov. 21, 1931).—A discussion of the merits of the Farnsworth system.—A. P.-C.

Water Films, Temperatures and Gases in Paper Machine Dryers. P. Sandwell. Pulp Paper Mag. Can. 30:1267-1270 (Nov. 19, 1931); Paper Trade J. 93, No. 27:25-28 (Dec. 31, 1931).—No condensate film forms around the inner circumference of 5-foot driers when run at speeds up to 1270 ft. per min. Under the "sealed" system, the minimum temperature in the drier is only 1.5 deg. F. lower than with the "blow-through" system, and the total variation in temperature throughout the drier roll is only 7.5 deg. as compared with 30 deg. When starting up cold dryers, rapid clearing of the air is of secondary importance, as steaming should be slow at first to avoid excessive strains.—A. P.-C.

Pulp and Paper Testing

Concerning the Determination of Lignin in Pulp. August Noll and Fritz Holder. Papier-Fabr. 29, No. 30:485:490 (July 26, 1931).—A quick method for the determination of lignin in pulp is described which requires the simplest aids. A rasped pulp is used. The formation of sugar from the carbohydrate takes place according to a new viewpoint, by using 78 per cent sulphuric acid in the presence of tertiary amines or bases whereby the speed of the reaction is allowed to increase considerable without the fear of the burning of the pulp due to the increase in temperature. A method is then described for the determination of the end point and also a sharp indicator was found to determine the course of the saccharification. The lignin is obtained as a coarse flocculent precipitate which can be filtered by a simple filter paper.—J. F. O.

Determination of Lignin in Pulp. A. Noll. Papeterie 53: 1276-80 (Oct. 25, 1931).—The method consists essentially in hydrolyzing the cellulose with 78 per cent sulphuric acid, using dimethylaniline as a catalyzer.—A. P.-C.

Estimation of Cellulose in Pulps by the Kürschner and Hoffer Alcohol-Nitric Acid Method. Harry F. Lewis and E. R. Laughlin. Paper Trade J. 93, No. 22:43-44 (Nov. 26, 1931).—From a comparison of the Cross and Bevan method and the Kürschner and Hoffer method, the authors conclude that the latter is not satisfactory for general use, even when simplified by the use of the centrifuge to shorten the time required.—A. P.-C.

Standard Method of Preparing Tests Sheets (To Determine Initial Strength of Paper Pulp). Donald E. Cable. Paper Trade J. 93, No. 26:31-36 (Dec. 24, 1931); Pulp Paper Mag. Can. 31: 1428-1431, 1440, 1442 (Dec. 31, 1931).—A compilation of comments and criticisms of the method as received during the summer of 1931.—A. P.-C.

Rapid Method for Laboratory Sheet Making and Paper Stock Testing. Leslie G. Cottrall, Philip H. Prior and T. E. G. Baker. World's Paper Trade Rev. 96:1467-1474, 1551-1554, 1606-1610 (Oct. 30, Nov. 6, 1931).—The official method of the British Paper Makers' Association for sheet making and testing has been modified to render it suitable for general mill control, particularly for work of a continuous routine nature. The essential modifications consist in drying the pressed sheets between two smooth-surfaced cloths on a drying cylinder at about 60 deg. C. for 15 min., and then conditioning at standard humidity and temperature in a strong draught for 15 min. The time of testing, from drawing the sample to obtaining the result, is reduced to about 2 hrs. without affecting the accuracy of the test. Sheets prepared by the modified method gives 20 to 25 per cent higher burst and 15 to 20 per cent higher tear than those prepared by the official method.—A. P.-C.

Need for Pulp Specifications. Carl C. Schneider. Paper Mill 54, No. 50:5 (Dec. 12, 1931).—A plea for the use of various tests, in establishing definite standards which sellers of pulp should be obliged to meet.—A. P.-C.

Determination of Pitch in Wood Pulp. Anon. Paper Trade J. 93, No. 27:23-24 (Dec. 31, 1931).—A description of the tentative official TAPPI method.—A. P.-C.

Illumination of Opaque Surfaces Under the Microscope. James Strachan. Paper Maker & Brit. Paper Trade J. 82, No. 6:TS25-TS27 (Dec. 1, 1931).—A description of the proper methods to use for proper illumination of opaque surfaces under the microscope and of their application to the microscopical examination of paper and printing.—A. P.-C.

Hydrolysis Number. O. Faust. Cellulosechemie 12, No. 5: 125-126 (May 3, 1931).—Determination of the hydrolysis difference, hydrolysis number and copper number of cotton linters, of native; mercerized for one hour in 18 per cent sodium hydroxide; defibered and pressed after the mercerization to three times the weight; ripened at 20 deg. for 17 days in a stoppered flask. These tests showed that the hydrolysis difference and hyrdolysis number is more than doubled by mercerization and by the following ripening unchanged.—J. F. O.

Pulp Consistency Variables in Pebble Mill Test*

By F. C. Peterson[1] and Frank Makara[2]

Experimental data pertaining to the variables effecting the pebble mill test is of a very meager nature when the literature is thoroughly reviewed on this subject. Some unpublished information, obviously, has been obtained by various investigators in arriving at what may be called "a tentative standard method" and which is in use at the present time in a relatively large number of mills throughout the country. As a result of the desire on the part of the association, to formulate a standard procedure for the use of the pebble mill, it was felt desirable that the various factors influencing the test be studied more in detail so that this information may be available for future reference.

The following report gives the results of a preliminary investigation of some of the variables relating to this test. The data obtained to date requires further verification and is presented with the hope that it may stimulate further research by other investigators.

Procedure

Prior to its introduction into the pebble mill, the pulp sample was mechanically disintegrated using the apparatus and procedure described by Moore and Willets.[3] The pebble mill used was furnished by the Abbe Engineering Co. of New York and is listed as size C. The porcelain balls were also supplied by this concern.

The investigations to date may be arbitrarily grouped into two series as follows: 1. Test runs performed using a constant standard consistency and pebble charge and with a variation of the pulp charge in the mill, and 2. Test runs performed using a constant standard pebble charge and with a variation of consistency in the mill over a range of pulp charges.

CHARGING THE MILL.—In all experiments porcelain balls were used, a sufficient number being taken to give a total working charge of 1780 cc. This volume represented a weight of 4200 grams and required between 90 to 92 balls. Their use has previously been described.[4]

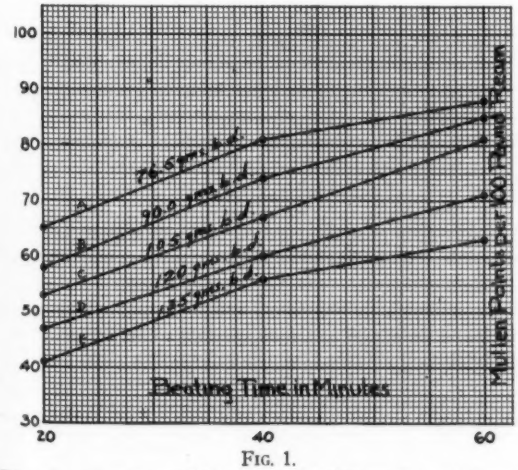

FIG. 1.

Effect of stock volume variation on the bursting strength at 4.3 per cent consistency. (See Table I).

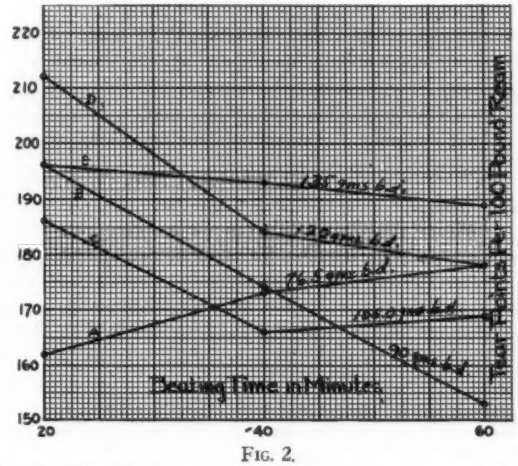

FIG. 2.

Effect of stock volume variation on the tearing strength at 4.3 per cent consistency. (See Table I).

In both series the equivalent wet pulp for the desired bone dry charge was added to the mill, followed by sufficient water to give the desired consistency on a bone dry basis. This, together with the predetermined volume of pebbles, constituted the charge for one run.

ROTATION OF THE MILL.—The mill revolved at 60 r.p.m. as shown by a revolution counter. After each 20 minutes at the prescribed speed, the mill was stopped and the entire charge dumped, after which the pebbles were separated from the pulp. Four separate portions of pulp were beaten for each test for 20, 40 and 60 minutes respectively.

PREPARATION OF SHEETS.—The pulp charge, after being separated from the pebbles, was diluted to 20 liters with water at 20 deg. C. Sufficient pulp to give a sheet of 60 to 70 pounds (25 x 40—500) basis weight was then dipped from this diluted stock. Five sheets were then prepared, using a sheet machine of the type described by Shaw, Bicking and Snyder.[5] A procedure similar to that outlined by these investigators was followed with the exception that

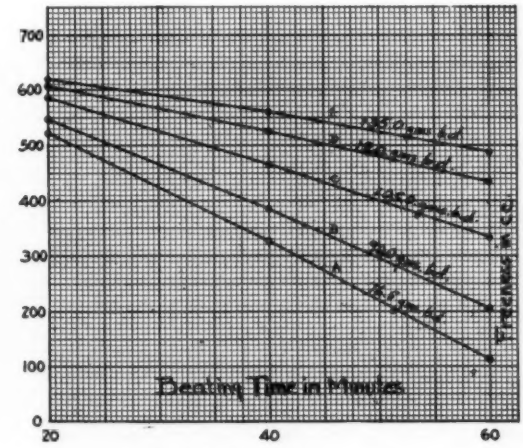

FIG. 3.

Effect of stock volume variation on the freeness at 4.3 per cent consistency. (See Table I).

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932. Send written discussion to R. G. Macdonald, 370 Lexington Ave., New York, N. Y.

Contribution of the TAPPI pulp testing committee.

[1] Member TAPPI, instructor, New York State College of Forestry, Syracuse, N. Y.

[2] Student, N. Y. State College of Forestry.

[3] Moore and Willets, Paper Trade Journal 92, No. 18:45 (1931).

[4] Peterson, Jeffrey and Moughan, Paper Trade Journal 93, No. 16:36 (1931).

[5] Shaw, Bicking and Snyder, Paper Trade Journal, 90, No. 8: 264 (1930).

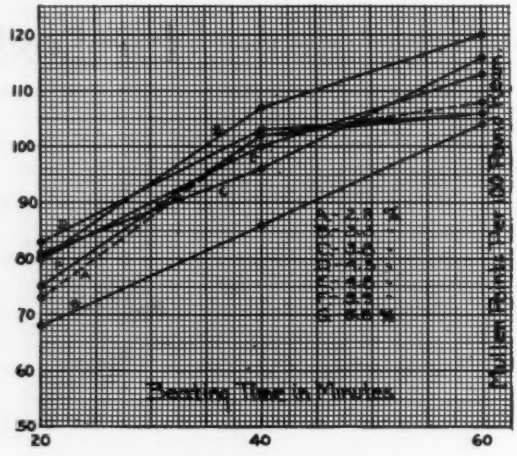

FIG. 4.
Effect of consistency variation on the bursting strength at 75 grams charge. (See Table II).

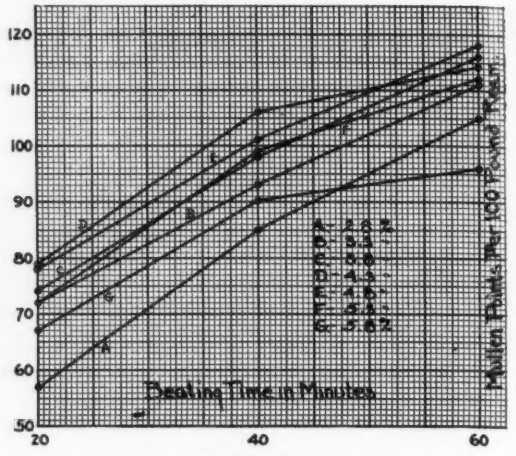

FIG. 6.
Effect of consistency variation on the bursting strength at 105 grams charge. (See Table IV).

no vacuum was applied to the machine. Agitation of the stock suspension prior to dipping was accomplished without mechanical aid. The sheets were removed from the machine by couching upon a moist felt.

FREENESS TESTING.—The Canadian-Green freeness tester was used for all freeness tests. Results were recorded in terms of cc. of fast water at 20 deg. C.

The equivalent of 3 grams of bone dry pulp was used for each freeness test. This sample was taken from the diluted suspension previously prepared for sheet making.

PRESSING OF SHEETS.—All pressing was accomplished through the use of hydraulic pressure. After removal from the sheet machine, the felt with its adhering sheet was covered with another moist felt and pressed for 30 seconds at a pressure of 30 pounds per square inch. The sheet was then removed, placed between eight dry, clean blotters and again pressed for 5 minutes at a pressure of 200 pounds per square inch. The final pressing was carried out by placing the sheet between four dry blotters, following which it was subjected to a pressure of 200 pounds per square inch for 2 minutes. The sheets for a particular time interval of beating, in "book" form, were all pressed at the same time.

DRYING AND WEIGHING.—The sheets were air-dried overnight, without tension, at 65 degrees relative humidity at 70 deg. F. After drying they were trimmed to a standard size (8½ by 10½ inches) and weighed to the nearest .01 of a gram.

TESTING.—All testing was carried out at 65 degrees relative humidity at 70 deg. F. Four test sheets, previously cut diagonally in half, were used for the Mullen test. Four pops were made along the diagonal of each half sheet thus giving a total of 32 pops for the bursting strength test. The bursting strength was calculated according to the following formula:

$$\text{Bursting strength} = \frac{\text{Average 32 pops x 100}}{\text{Average ream weight of sheets}} = \text{Points per 100 pound ream}$$

The remaining sheet was used for the Elmendorf tear test. Four strips of standard size were cut from this sheet. A total of ten tear tests was taken for the Elmendorf value. Two strips were torn simultaneously in the tester. The tearing strength was calculated as follows:

$$\text{Tearing strength} = \frac{\text{Average 10 tears x 100}}{\text{Ream weight of sheet}} = \text{Points per 100 pound ream}$$

Discussion of Results

SERIES A.—Variation of the pulp charge at a consistency of 4.3 per cent produces a definite change in the characteristics of the beating curve.

A reduction in the weight of pulp charges to the mill causes an elevation in the Mullen values throughout the entire beating cycle.

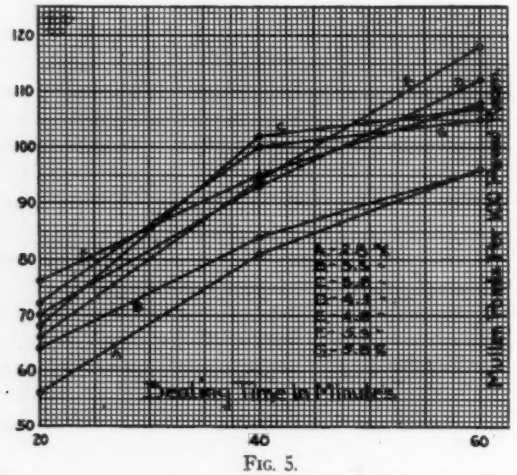

FIG. 5.
Effect of consistency variation on the bursting strength at 90 grams charge. (See Table III).

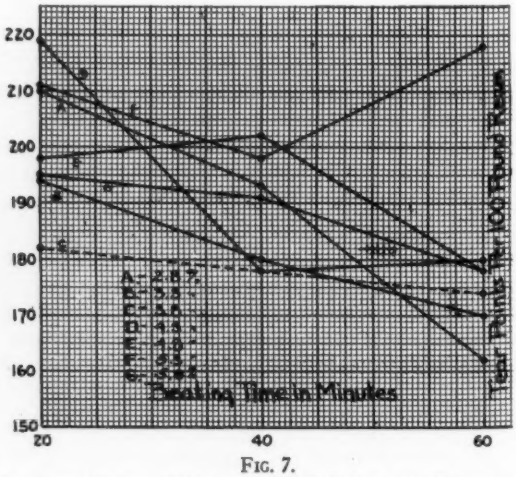

FIG. 7.
Effect of consistency variation on the Elmendorf test at 75 grams charge. (See Table II).

Experimental Data

TABLE I. EFFECT OF PULP CHARGE VARIATION UPON STRENGTH TEST VALUES AT 4.3% CONSISTENCY—PULP B

Weight of B.D. Charge	Mullen (Points per 100 pound Ream), Minutes			Elmendorf (Points per 100 pound Ream), Minutes			Freeness (cc Fast Water), Minutes		
	20	40	60	20	40	60	20	40	60
76.5	65	81	88	162	173	178	521	326	112
90.0	58	74	85	196	174	153	549	385	206
105.0	53	67	81	186	166	169	585	465	332
120.0	47	60	71	212	184	178	608	525	434
135.0	41	56	63	196	193	189	619	560	489

TABLE II. EFFECT OF CONSISTENCY VARIATION UPON STRENGTH TEST VALUES 75 GRAMS B.D. CHARGE—PULP C

Per Cent Consistency	Mullen (Points per 100 pound Ream), Minutes			Elmendorf (Points per 100 pound Ream), Minutes			Freeness (cc Fast Water), Minutes		
	20	40	60	20	40	60	20	40	60
2.8	73	102	103	210	193	162	583	456	376
3.3	80	107	120	194	180	170	568	423	287
3.8	81	96	116	182	178	174	545	391	201
4.3	83	103	106	219	178	180	546	371	203
4.8	80	100	113	198	202	178	549	383	194
5.3	75	102	106	211	198	218	568	363	233
5.8	68	86	104	195	191	178	574	433	219

TABLE III. EFFECT OF CONSISTENCY VARIATION UPON STRENGTH TEST VALUES. 90 GRAMS B.D. CHARGE—PULP C

Per Cent Consistency	Mullen (Points per 100 pound Ream), Minutes			Elmendorf (Points per 100 pound Ream), Minutes			Freeness (cc Fast Water), Minutes		
	20	40	60	20	40	60	20	40	60
2.8	56	81	96	211	198	206	622	541	442
3.3	64	84	96	254	212	203	593	491	419
3.8	68	102	107	242	224	168	580	400	344
4.3	70	93	112	237	176	170	576	444	299
4.8	66	94	118	242	201	181	591	458	291
5.3	76	95	108	224	157	182	598	488	315
5.8	72	100	105	186	175	170	601	480	338

TABLE IV. EFFECT OF CONSISTENCY VARIATION UPON STRENGTH TEST VALUES. 105 GRAMS B.D. CHARGE—PULP C

Per Cent Consistency	Mullen (Points per 100 pound Ream), Minutes			Elmendorf (Points per 100 pound Ream), Minutes			Freeness (cc Fast Water), Minutes		
	20	40	60	20	40	60	20	40	60
2.8	57	85	105	232	186	158	645	593	514
3.3	72	93	111	214	195	195	627	543	479
3.8	74	98	116	199	168	167	620	524	412
4.3	79	106	114	200	186	195	598	503	408
4.8	78	101	118	190	184	166	610	522	373
5.3	72	99	112	220	192	165	617	509	382
5.8	67	90	96	210	172	176	628	540	458

In general, higher freeness values are obtained when a heavier pulp charge is used. The rate of change in the slope of the freeness curve is correspondingly greater as the weight decreases. If freeness values alone are taken as an index of hydration, we may conclude that this takes place more rapidly and to a greater extent at the lower weight charges.

The Elmendorf test serves to clarify the preceding data to some extent. It shows that the lower freeness values obtained as the pulp charge is decreased result not alone from hydration but also from fiber disintegration. This is to be expected and is apparently

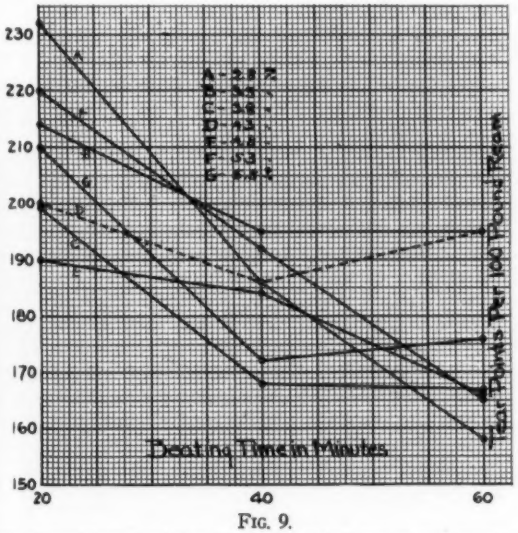

FIG. 9.

Effect of consistency variation on the Elmendorf test at 105 grams charge. (See Table IV).

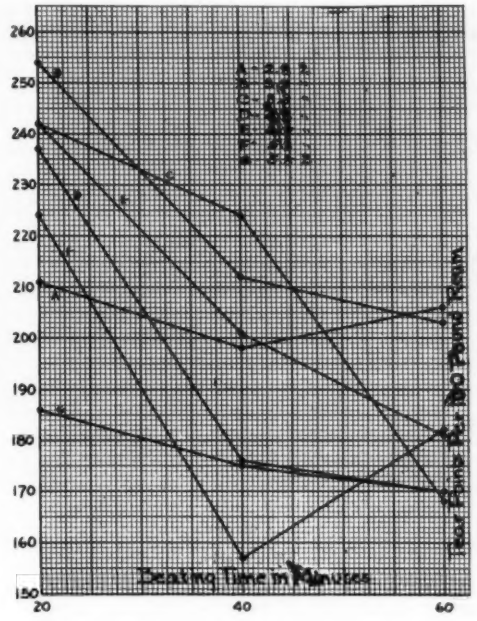

FIG. 8.

Effect of consistency variation on the Elmendorf test at 90 grams charge. (See Table III).

caused by the greater chopping action to which the pulp is subjected by the balls as the weight of the charge within the mill is decreased. The slight change in the tear curve at the maximum charge serves to substantiate this. A curve more indicative of true hydration is to be expected as the weight of the charge is increased. Under these conditions Mullen values developed at the expense of tear are minimized.

SERIES B.—Variation of the charge consistency produces marked differences in the type of strength curve obtained for all charge weights studied.

A distinct break and subsequent flattening of the Mullen curve is obtained during the course of 60 minutes at a consistency of 2.8, 4.3 and 5.3 per cent for a charge of 75 gms.; 3.8 and 5.8 per

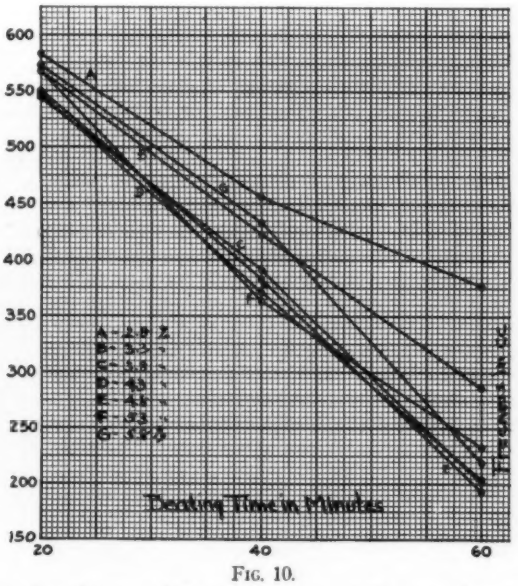

FIG. 10.

Effect of consistency variation on the freeness at 75 grams charge. (See Table II).

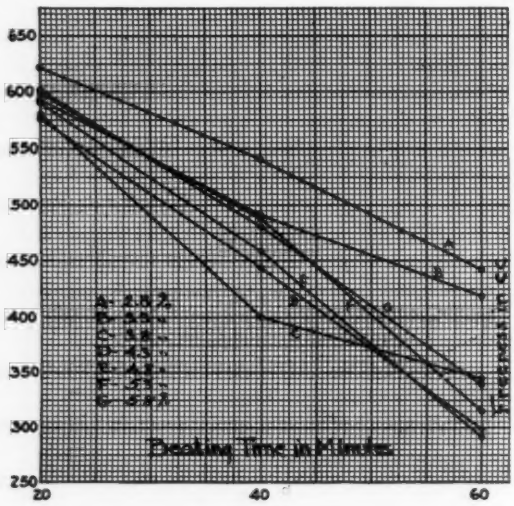

FIG. 11.
Effect of consistency variation on the freeness at 90 grams charge. (See Table III).

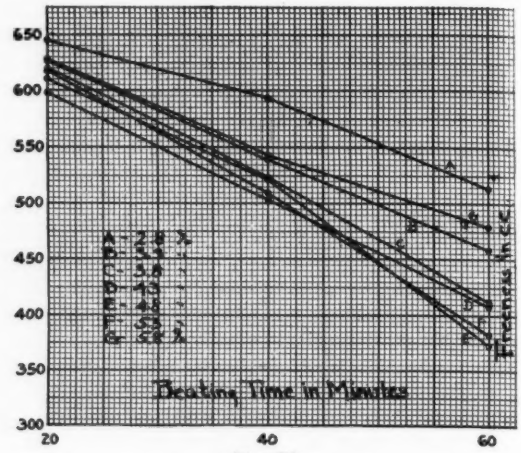

FIG. 12.
Effect of consistency variation on the freeness at 105 grams charge. (See Table IV).

cent at 90 gms.; 4.3 and 5.8 per cent at 105 gms. It is to be concluded that when rapidity in reaching the peak of the Mullen curve is the governing factor in the strength test, such a condition will be most easily realized when one of the foregoing consistencies is utilized.

Low consistency, coupled with a light pulp charge, materially aids in the development of a peak in the Mullen curve. Such a condition undoubtedly can be ascribed to a more positive action of the balls upon the fibers, thus aiding the development of Mullen at the expense of tear. Further verification of this fact is afforded by the Elmendorf data.

The freeness data for this series reveals the interesting fact that in all instances the freeness values are consistently higher and the slope of the curve more gradual at 2.8 per cent consistency. At the medium consistencies, freeness changes are more marked and quite similar in character throughout the range of weights studied. Hence, to produce hydration in the ball mill, as judged from the standpoint of freeness, consistencies of 4.3 or 4.8 should be used.

Throughout the entire range of consistencies, lower Elmendorf values obtain when a charge of 75 gms. of pulp is used in the mill. A minimum of change in this value during the course of the beating cycle is likewise noted in comparison to that produced by other weight variations. These facts may be explained on the assumption that chopping action of the balls causes fiber disintegration and a consequent lowering of the tear resistance. The highest Elmendorf values, coupled with maximum change during the course of the beating cycle, are attained at a charge of 90 gms.

In general, it is to be concluded that the consistency of the pulp in the mill during the course of the test greatly influences the type of tear curve which will result. If reliable results are desired, this factor must be controlled within narrow limits.

Future Work

Further work is in progress at the present time in which the effect of variation in the weight of pebbles charged to the mill is being studied over a range of pulp charges. The effect of consistency changes under these conditions will likewise be noted. The beating time in this new series of tests has been increased an additional twenty minutes over that reported in the foregoing investigation. This assures the pulp of a treatment of 80 minutes in the mill which should produce a peak for all the curves to be studied.

Abstracts and Bibliography Committee*

Following is a report of the activities of the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry for the year 1931.

Abstracts

During the past year there appeared 171 pages of abstracts of periodical literature and patents, as compared with 153.5 pages in 1930, 71 pages in 1929, 66 pages in 1928, 65 pages in 1927, 107 pages in 1926, 77 pages in 1925 and 78 pages in 1924.

Through the cooperation of Secretary Macdonald and of Henry J. Berger, editor of PAPER TRADE JOURNAL, the committee is glad to report that the publication of abstracts is now up to date and that from now on they should appear much more promptly than in the past. It is felt that this prompt appearance of the abstracts will greatly increase their value to the members of the Technical Association.

Bibliography

The annual bibliography for 1930 appeared in PAPER TRADE JOURNAL [Feb. 19, 1931: 145-185 (odd pages only): Feb. 20, 1931: 40-46; Mar. 5, 1931: 47-54] and in the Technical Association Papers XIV: 392-429 (May, 1931). The reprint in the Technical Association Papers again carried an author index. The bibliography for 1931 is submitted as a part of this report. It is regretted that the PAPER TRADE JOURNAL finds it impossible to publish this bibliography in the Convention Number, in which it has appeared for several years past, but this must be blamed, together with many other unfortunate things, upon the business depression. It is hoped, however, that arrangements may be made for its early appearance.

The first supplement to the bibliography on "Waste Liquors and Gases of the Paper Industry," appeared in the PAPER TRADE JOURNAL (Jan. 15, 1931: 48-56; Jan. 22, 1931: 50-56; Jan. 29, 1931: 46-51). The original list [PAPER TRADE JOURNAL 81, nos. 14-26 (Oct.-Dec., 1924)] contained 534 patents; the supplement contained 341 additional patents.

Indexes

The semi-annual indexes for Volumes 91 and 92 of the Technical Section were published during 1931. The index for Volume

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.

93 has been prepared and will appear early in 1932. An effort is made each year to improve these indexes but the chairman is always open to suggestions as to methods of making them better, since they represent a detailed index of the papermaking literature and patents of the world.

Patents

A classified list of the United States patents on papermaking for 1931, arranged according to the Patent Office classification, appeared in the Technical Association Papers XIV: 430-437 (May, 1931). During 1931, there have also appeared quarterly chronological lists in the PAPER TRADE JOURNAL for Feb. 5, May 28, Aug. 6 and Oct. 22. The complete list for 1931 will probably appear in Volume XV of Technical Association Papers.

Research Laboratories

A list of research laboratories maintained by paper-making and related firms, giving the research staff and research work, appeared in PAPER TRADE JOURNAL for May 7, 1931 (p. 47-54). This list was abstracted from a list of more than 1,600 laboratories published as Bulletin No. 81 of the National Research Council.

Requests

Evidence of the value of the work of the committee is seen in the number of requests received for photostats of the articles appearing in the abstract section.

While it is possible to furnish photostat copies of most of the abstracted articles, copies of patents must be ordered through the Patent Office, Washington, D. C. Printed copies of the United States patents may be obtained for ten cents ($0.10) each. Photostatic copies of patents of almost all other countries may also be obtained from the Patent Office, though in this case it is necessary that the cost of the photostat be ascertained before ordering, as all orders must be accompanied by remittance. However, if desired, a sufficient sum may be sent with the request and the excess over the actual cost will be refunded with the photostat. In most cases one dollar ($1.00) will cover the cost of any photostat.

For the information of those who may wish to order patents directly, the following data compiled by Chemical Abstracts is submitted:

Copies of any patent can be obtained for: United States, 10 cents, sent to the Patent Office, Washington, D. C.; Australian, 1s. 6d., sent to the Commissioner of Patents, 581 Bourke St., Melbourne; Austrian, 1S., sent to the Osterreichisches Patentamt, Vienna; British, 1s. plus postage (usually ½ d. outside of the Kingdom), sent by International Money Order, payable to the Comptroller-General, to the Patent Office, Sale Branch, 25 Southampton Buildings, London, W. C. 2; Danish, Kr. 3 for each 5 pages, sent to the Patentkommissionen, Polititorvet 14, Copenhagen; Dutch, Fl. 0.60, sent to Octrooiraad, Oostduinlaan 2, The Hague: French, 5 franc plus postage, sent to L'Imprimerie Nationale, 27 rue de la Convention, Paris (15); German, R. M. 1, sent to the Reichspatentamt, Gitschiner Strasse 97-103, Berlin S. W. 61; Japanese, 5 sen plus postage, sent to Hatsumei Kyokwai (Invention Association), 1, Yuraku Cho Itchome, Kojimachi Ku, Tokyo; Norwegian, Kr. 1.50 plus postage (usually Kr. 0.30), sent to the Office de la Propiété Industrielle de Norvège, Middelthunsgate 17, Oslo; Russian, 25 cents, sent to Committee on Inventions of the U. S. S. R., Leningrad, 11, U. S. S. R.; Swedish, Kr. 1.00, sent to Küngl. Patent- och Registreringsverket, Stockholm; Swiss, F. 1.20 per copy of 10 pages or less, F. 2.40, 11 to 20 pages, F. 3.60, 20-30 pages, etc., sent to Bureau fédéral de la propriété intellectuelle, Berne. Of Canadian patents manuscript copies only are obtainable. They are furnished by the Commissioner of Patents, Ottawa. Estimates of cost can be obtained in advance. Belgian patents are not available in printed form.

The chairman wishes again to express his appreciation of the very faithful services of the other members of the Committee, A. Papineau-Couture, C. E. Peterson and J. F. Ohlson, who are responsible for the abstracting of the magazine articles and patents.

The chairman will also be glad to receive suggestions for possible compilations and for methods of improving and making more useful any of its present activities.

CLARENCE J. WEST, Chairman.

Paper Manufacture Development Report*

Since the Annual Convention in New York last February, little actual work has been done, other than the adoption for study by the committee of machine clothing, to include wires, wet and press felts, and drier felts.

Since the inception of this committee no one subject for study has been received so favorably, the responses having been really encouraging. With this in mind it is to be expected that some interesting data might be accumulated for the benefit of the Association.

In the year that the committee has been operating a number of papers have been prepared and presented at past conventions, and with everyone working together on the life of machine clothing, we may expect eventually to have some interesting information.

While we all know that the subject of felt life is a big one the handling of it might be divided into two parts.

1. The selection and manufacture of the proper design of felt for a particular condition involves questions of proper emphasis on water removal, production and sheet quality, as well as life. All of these various qualities should be balanced properly.

2. In general, other things being equal, the life of felts varies inversely with the amount of mechanical work that is placed on the felt. This whole field includes loads that the felts have to pull, frictional wear that is exerted on them, various chemical conditions that exist while running, also mechanical abuses such as uneven pressure, bad crowns of press rolls, etc.

There are, of course, many personal factors that must be considered which have a bearing on the life of felts, namely the machine tender running a new felt in, and the care thereafter.

One of our biggest objects is to establish tabulation of correct records of the performance. If we could record accurately just what happens to a felt while on the machine and determine felt cost per ton of paper for each felt, we will be headed in the right direction, and would eventually eliminate a lot of so-called mysteries that now exist. This committee hopes to be instrumental in bringing this about, and we feel sure that once we bring this problem to a common-sense basis, the rest will be much easier.

Wires are, of course, very important, but until we have exploited the subject of felts thoroughly, we might mention the fact that with proper control of the tension roll, there should be added life to a wire. The recommended tension for wire operation is about 3 pounds per square inch, and it is quite obvious that when this is exceeded undue stretching will result and therefore reduce wire life.

If the work we have planned for the coming year materializes, we should have some interesting data at a later date.

Might add in conclusion that the cooperation of the committeemen should be commended.

L. M. YOERG, Chairman,
American Writing Paper Co.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.

Alkali Recovery Patent Review*

By C. L. Wagner[1]

This paper, being partly historical, must embrace the three stages found in general history, viz.: ancient, medieval, and modern.

The ancient takes in the period of papyrus from Egypt and the true papers first originating in China and oriental countries, these moving westward to Persia and India in 600 A.D., then brought to Spain by the Saracens about 800 A.D., Italy, France and England adopting this later, up to 1300-1400.

It is curious to note here that in China, before the Christian era, true paper, as distinguished from papyrus, was made both by mechanical and chemical process, this embracing the fermentation of a beaten pulpy mass, or an acid product, corresponding to sulphite, and a product made by boiling the pulp bearing mass with lye, obtained from wood ashes, corresponding to soda pulp. It is also worthy of note that no further progress in this art was made in these countries until modern times, and then only by bodily importing process and equipment from western countries.

But they did originate these processes as they did many other things.

The medieval period may be taken to embrace roughly from 1000 A.D. to 1800, this period being devoted to the use of fibers from rags (linen), cotton, jute, straw and many others, including esparto and other grasses.

In 1765 Schaeffer of Ranslon, published a book printed on 60 varieties of paper made from as many materials.

Manual labor, assisted by crude power devices, ruled the field until about 1750, when increased demand and chemical and mechanical knowledge were really applied. The first mill in America, that of William Rittenhouse at Germantown, at about 1690, used rags.

It was usual to "cook" the rags with weak lyes, which were later wasted, in order to cleanse and reduce them to fibers, either before or after "beating." Most of this equipment was water powered and was in the nature of beating hammers.

The modern history of the industry may be said to begin with Le Blanc's invention of soda ash manufacture, though the use of wood was first suggested by Reaumur in 1719.

Straw has always held an important place for coarse papers, though its use for fine paper has fallen off steadily, due to the difficulties inherent in manufacture and the development of easier processes and more suitable materials.

With the invention of a process for producing soda ash commercially, the modern pulp making process began and the so-called soda process is the oldest process. When the recovery of soda began and the early attempts are not very definitely known—certain data show a considerable activity in the early 1800 period, most of the work being done on hearths or flat bed furnaces by the use of coal or wood burning furnaces, considerable hand working being done to produce the char which was finally leached out and reused.

The invention and development of multiple effect evaporators greatly assisted this, though the Carlson and disc evaporators were a great aid and are still used in less modern plants.

While in England in 1930, the writer saw a flat bed furnace in use, though the same mill used high pressure boilers and extraction turbines.

The first use of the rotary furnace is not known, though its use became more general in America than in Europe, until 1884, when the invention of the so-called kraft process of Dahl caused a rapid change in the Scandinavian countries and in England to the rotary furnace. England adhered to the rag and esparto process and does so yet, while the Scandinavian countries are practically all chemical and ground wood pulp and paper producers.

It is interesting to note that from 1912 to the present time, nearly all Swedish mills have installed some form of heat recovery, though the Swedish patents of Mr. Gunnar Sundblad of Wifstavarfs, in 1917, are the first disclosures of heat recovery by means of boilers in the Swedish patent office. Carlson and disc evaporators have almost gone out of use there, boilers and economizers, the latter both water and liquor heating, have displaced them, though some of our mills are now bringing the boiler and disc into use as a "new" development.

In England a chain grate was developed by Wallace of Carrongrove, to burn the hot ash from rotaries in the esparto process, supplying some heat and a cleaner ash.

In the United States and Canada, the first sulphate pulping plant was established at Brompton Pulp & Paper Co., East Angus, in 1907-1908, with multiple evaporators, disc evaporators, rotaries and smelters and the same type equipment is still in use there.

In the United States, the soda process became very important at about 1880 and the rotary was very generally adopted. According to German literature, where the flat bed furnace was generally used, this gave American mills an important advantage. Mills were confined to the New England States at the beginning.

The first use of steam boilers to recover some of the heat from the operation is rather obscure, though it was realized there was considerable heat which might be recovered even as early as 1880.

Patent Literature

The patent literature is very interesting in an historical way, as showing a knowledge of certain facts, but also a lack of equipment and fundamental ability to realize a development which has been many years in arriving.

DIXON. U. S. No. 179,536.

Combination of digester, evaporator and incinerator horizontal furnace, when liquor, concentrated to mass, this mass burned with fuel (wood or coal). Leaching followed.

KITCHEN. U. S. No. 186,349.

Horizontal evaporating and incinerating furnaces, used a blower, supplying air under grate and at entrance of furnace over grate. This is first recognition that air is required to burn the charred material.

DIXON. U. S. No. 187,751.

Horizontal furnace combined as a preheater and evaporator. The liquor was apparently superheated, and sprayed through the gas passage onto the hearth. Hand working necessary and probably intermittent operation.

KITCHEN AND ALLEN. U. S. No. 196,462.

Apparatus for evaporating and calcining alkalies. This was an horizontal reverberatory furnace, with a fuel burning grate, having air forced in below and above the grate, a spray of liquor onto the hearth, with a parallel flow of gases and materials.

DIXON. U. S. No. 218,056.

Apparatus for evaporating and calcining alkaline solutions. Combined heating concentrator and calcining furnace. A horizontal hearth, with provision for hand stirring, an auxiliary fired furnace, an evaporating pan to use the waste heat and a separate chamber for incineration of concentrated material.

CHAPMAN. British No. 1078 (1880).

Stationary recovery furnace, horizontal, preheating liquor in

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* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the TAPPI alkaline pulping committee.

[1] Member TAPPI, engineer, J. O. Ross Engineering Corporation, New York, N. Y.

pipes by waste gas. One combustion zone. Coal used in grates adjacent. Hand working required.

CLOUDMAN. U. S. No. 319,956.

Rotary and furnace.—See Warren & Cloudman, No. 380,670. Same as Warren and Cloudman, except had no conveyor in rotary and throat of furnace not water cooled.

EMERSON (1887). U. S. No. 377,551.

Double incinerator and steam boiler. Two hearths for continuous operation, with steam boiler in waste gases. Fuel used for concentrating, but he claimed that when solid, enough fuel value present for own combustion. This antedates Dornfeldt's claims to having discovered sufficient fuel values, made in 1892. Materials flow countercurrent to gases.

WARREN AND CLOUDMAN (1888). U. S. No. 380,670.

Rotary incinerator and evaporator, with a scroll conveyor loose in rotary to move materials forward, also one in dust chamber to move liquor to rotary. Fuel burning furnace and no boiler—claims ash contains 25 to 40 per cent carbon only. Had water cooled throat.

BULLARD (1889). U. S. No. 391,735.

Rotary horizontal furnace with boiler—countercurrent flow of materials and extra liquid or solid fuel used. Practically the same device is still used in many mills.

ATWOOD (1889). U. S. No. 418,624-5.

Horizontal stationary furnace, with boiler, all tightly closed and operating under pressure. Liquor sprayed with fuel and steam in a parallel current. Gases were forced to emerge under water, attempting the first gas washing to recover chemical. Not successful for many reasons. It contains no mention of air, though this is assumed as being used in the nozzle. Boiler absorbed radiant heat and combustion space totally inadequate.

CLOUDMAN (1889). U. S. No. 418,273 (apparatus), and No. 418,274 (process).

A horizontal spray type furnace with boiler, utilizing fuel, steam and black liquor through the same nozzle, with a grate in bottom, though how this was to operate is not shown. The flow of gases and materials is parallel, no secondary air used, but did use 35 deg. Be. liquor, which at that time was difficult to attain. This furnace was also unsuccessful due to various reasons, such as absorption of radiant heat, insufficient volume and insufficient air where required.

BLACKMAN (1890). U. S. No. 424,755-6.

Soda recovery. A horizontal furnace, spraying a superheated liquor (reconcentrated under pressure) in parallel with flow of gases. Had one combustion zone and did not use secondary air. Did not secure fusion or complete combustion. The furnace was operated under pressure. This was a failure for the same reasons previous spray type furnaces failed. The disclosures anticipate the important principles of two other later patents.

BLACKMAN (1892). U. S. No. 478,980-1.

Horizontal reverberatory furnace, with one zone for combustion, with parallel spraying. Fuel used on auxiliary grate. In a vertical stack for waste gases, weak liquor is atomized with air, running down the stack and concentrating, then being pushed forward by hand as required. Not successful. Reverberatory is used in the sense of reflecting or radiating heat downwardly on the material from roof, as in open hearth furnaces, used in steel manufacture.

DORENFELDT (1899). U. S. No. 620,751-2.

Recovery of chemicals. A rotary furnace with boiler, in which superheated (?) liquor was sprayed either with or without additional fuel and air. The spray was parallel to the flow of gases and materials, no secondary air used and one zone only. This equipment was tried out at a plant in Germany for several days, but due to high stack losses, was discontinued.

MOORE, H. K. (1915). U. S. No. 1,137,779.

Process of recovering the soda content of waste liquor. This was a process for evaporating the waste liquor, with or without adding carbonaceous materials (as sawdust), feeding the dried material into a smelter, connected by a gas passage to a boiler, from which part of gases were diverted to a drier similar in many respects to a Herreshoff furnace. No data as to use is known.

MOORE, H. K. (1915). U. S. No. 1,137,780.

This was a new development of the spray type stationary horizontal furnace with boiler, utilizing a sloping bottom, radiating arch, with parallel current spraying. Air was used to atomize the liquor, producer gas to supply heat, with a blast nozzle to smelt the materials gathering on the sloping floor. Salt cake was mechanically mixed with the liquor. Due to the velocity of gases and small cubical content of the furnace, a Cottrell precipitator was required to collect chemicals carried out. This is the first spray type furnace used in connection with sulphate or kraft process.

MOORE AND QUINN (1919). U. S. No. 1,326,414.

This process is known as the "explosion" process, superseding the previous installation in 1917, which used producer gas as extra fuel. This depends on the explosive force of steam generated by superheating the liquor, which explosion produces the minute particles required for this process. The smelting is done by the usual jet of air and in this patent he states the previous patent and apparatus were not operable without extra fuel.

While the Brown Company have very carefully guarded all developments, it is understood that this process has been in constant use at La Tuque. In 1930 one Wagner unit was installed there. No data is available as to results on Moore's furnaces except that given in H. K. Moore's paper.[2] Many additional patents on process, including the Moore furnace, have been taken out by George Richter, director of research for the Brown Company.

WAGNER (1930). U. S. No. 1,771,829, and later patents.

This is a stationary vertical furnace, for the first time employing the two zone principle of combustion, countercurrent spraying and the use of secondary air. It resulted from the efforts of the inventor in 1923 to improve rotary work, to secure a complete combustion and the elimination of extra fuel. Eight months of continuous work of an experimental nature on rotaries was followed by a small experimental vertical stationary unit, which was successful. This led to the development of a commercial size unit, which proved to be a long and difficult task, but forty (40) units of this type are now in regular use.

The soda and the sulphate processes are handled equally well, only a slight change in operation and construction being required, the chemical in both cases being smelted, practically free from carbon.

The matter of stack losses has never been a serious item in this process and is handled either by wet scrubber, bag filters, or a combination of scrubber and Cottrell, which, under these conditions, is not costly. Odors have been entirely eliminated in one case in the sulphate process.

GOODELL (1930). U. S. No. 1,779,535-6-7-8.

This is a very interesting development, of which one installation exists. It is a method of spray drying the black liquor and smelting the powder as a powder or briquette, a boiler converting the heat to steam and the gases leaving the boiler are used for spray drying. A scrubber is used, utilizing liquor and securing some evaporation. At first glance, the heat economy appears good, in fact, equal to the best spray type furnace. Whether this will work out in practice is not known, but there are many problems to be solved. In common with the Wagner furnace, this method produces a higher sulphide from equal amounts of salt cake than is possible with the Swedish type unit. At present it is very costly and tends to intensify the odors inherent to the kraft mill.

SWEDISH TYPE UNITS.—So-called because they follow the lines of Swedish practice in having a boiler after the rotary. Recent installations have departed from this, retaining disc evaporators after the boilers, where Sweden uses economizers. Also one large steel jacketed smelter is used instead of the double unit, not jacketed. Either mechanical feeders are generally utilized or the

[2] See Moore, H. K., paper on "Explosion Process" in proceedings "American Institute Chemical Engineers," 1919.

rotary discharges by gravity to the smelter, which latter may be classed as a dangerous practice.

The results in steam, labor saving and upkeep have been disappointing, and stack losses are high, as too large a production is attempted.

There have been other attempts, still being carried on, to improve recovery, but none appear promising.

A tabulation of results is not only interesting but instructive. These cover the usual unit in kraft and soda, as well as Swedish type, Wagner and Goodell.

All figures are based on 100 tons as a unit. Steam is rated in index numbers, as is labor, steam for evaporation and upkeep.

	Fuel	Labor	Steam to Evaporate Liquor	Upkeep	Stack Loss, Per cent	Steam Produced
Soda Rotary	10	20	30	25	3	25
Kraft Rotary	2—4	50	28	60	6—8	.....
Swedish Practice..	.....	50	30—32	65	2—3	55—65
U. S. Swedish....	.....	40	28	45—50	6—8	50—55
Wagner Type	.....	10	35	15—40	2—3	100
Goodell Type	.....	15	32	Not known	4—5*	100

* From present information.

The first cost of modern units, including boilers, does not show a marked difference per ton capacity, irrespective of which type is used of those now offered.

Determination of Copper Number of Paper*

Tentative Official Standard Method of the Technical Association of the Pulp and Paper Industry

I. Scope

This method is for papers free from unbleached, ground wood, or other highly-lignified fibers, such as the ordinary types of writing and printing papers used for record purposes.

II. Apparatus

The special apparatus required for this test is, a grinder which will completely disintegrate the paper without heating or contaminating it and a steam or oil bath which can be maintained at 100 deg. C. The grinder shall be a "Dr. Koerner" type (See Section VII) or its equivalent.

The balance used for weighting shall be sensitive to 1 mg.

The glassware used shall be acid and alkali resistant.

III. Reagents

A. Copper Sulphate Solution. Dissolve 100 g. C.P. copper sulphate ($CuSO_4.5H_2O$) and dilute to 1 liter, using distilled water.

B. Carbonate-Bicarbonate Solution. Dissolve 350 g. C.P. sodium carbonate ($Na_2CO_3.10H_2O$) and 50 g. C.P. sodium bicarbonate ($NaBCO_3$) and dilute to 1 liter, using distilled water.

C. Molybdophosphoric Acid. Dissolve 100 g. C.P. sodium molybdate ($Na_2MoO_4.2H_2O$) and 75 ml. C.P. phosphoric acid (83 per cent) in a mixture of 275 ml. C.P. concentrated sulphuric acid and 1.75 liters distilled water.

D. Sodium Carbonate Solution. Approximately 5 per cent solution C.P. sodium carbonate in distilled water.

E. Potassium Permanganate Solution. 1/20 N C.P. potassium permanganate solution.

IV. Specimen

The specimen for test shall be cut from the test sample in such a way as to be thoroughly representative of it, and shall be completely disintegrated in the grinder specified in II.

V. Procedure

Allow the specimen to come to moisture equilibrium with the atmosphere of the balance. Weigh about 1.5 grams (to nearest 1 mg.) of the ground paper. Weigh at the same time, samples for moisture and ash determinations, and for determinations of such other non-cellulose components (total resins, starch, glue, etc.) as may be found necessary for correction of the copper number. These determinations shall be made by the official methods of the Technical Association of the Pulp and Paper Industry. When mineral filler is present, the weight of it shall be calculated from the ash content. The weight of mineral coating shall be determined likewise, or according to the official association method, but in the latter case the use of trypsin is recommended. (Sutermeister and Porter, Tech. Asso. Papers, 13, P. 206, May, 1930.)

Immediately before use add 5.0 ml. of solution A to 95 ml. of B. Bring the mixture to a boil in 2 minutes, and pour it over 1.5 g. of the finely ground sample in a 125 ml. Erlenmeyer flask. Stir well with a glass rod in order to distribute the fibers and to remove air bubbles. Fit the flask with loosely fitting glass bulb or stopper and submerge completely in a steam bath at atmospheric pressure. Occasionally fibers tend to float to the surface, therefore the flask should be shaken from time to time to redistribute fibers. Remove the flask from the steam bath at the end of three hours. Filter on an ashless filter paper in a 7.5 cm. Buchner funnel, using suction. Wash by flooding with 100 ml. of 5 per cent sodium carbonate solution at about 20 deg. C. and then by flooding with 250 ml. of hot water (about 95 deg. C.). Transfer fiber and filter paper to a small beaker, add 25 ml. of the molybdate solution and macerate well with a flattened glass rod. Transfer to a Buchner funnel again and wash thoroughly with cold distilled water until the blue molybdenum color is removed from the fibers. Dilute the filtrate with water to approximately 700 ml. and titrate it with 1/20 N potassium permanganate to a faint pink.

The copper number is defined as the number of grams of metallic copper in the cuprous oxide reduced from the cupric hydroxide by 100 grams of the paper fibers.

$$\text{Copper Number} = \frac{6.357 \times \text{ml } KMnO_4 \times N}{W}$$

where N is the normality of the potassium permanganate and W is the weight in grams of the test specimen after deduction of the weight of the non-cellulosic materials. Correction of weight of test specimen shall always be made for moisture and ash. Correction for other non-cellulosic components shall be made whenever they are present in significant amounts. Not less than two determinations shall be made and the average of the results shall be reported. Duplicate determinations shall agree within .01.

VI. Report

The copper number shall be reported for the total cellulosic content, and shall be rounded off to the nearest .01.

VII—Additional Information

This method is essentially the Braidy[1] modification of the original Schwalbe[2] method, with modifications for its adaption to paper proposed by Scribner and Brode,[3] and by Burton and Rasch.[4]

* This method has been approved by the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to B. W. Scribner, chairman, Bureau of Standards, Washington, D. C.

[1] A thorough investigation of the Braidy method was made by Clibbens and Geake (J. Text. Inst., 15, T 31, 1924).
[2] Die Chemie der Cellulose, p. 625; 1912.
[3] Technologic Paper No. 354, National Bureau of Standards.
[4] Bureau of Standards Jour. of Research, R. P. 295, April, 1931. Includes an illustrated description of the "Dr. Koerner" type of grinder.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by Thomas J. Burke C. A. Director Cost Dept.

Cutting the Cost of Cost Accounting*

By Clinton W. Bennett[1]

There is one phase of cost accounting that has been very firmly fixed in my thoughts for a considerable time and which I believe merits concerted thought and constructive action. For sake of brevity, I have called this subject "Cutting the Cost of Cost Accounting," and it is of this that I would speak to you tonight. With full consciousness that many will doubtless violently disagree with me, I welcome this opportunity of expressing my views on this part of cost accounting before my old Chapter.

The Dangerous Age

My friends, I am going to say to you at the outset that, in my opinion, cost accounting has reached the dangerous age. I can hear you saying, "How can that be, when all around is evidence that there is more interest in this work than ever before?" That condition undoubtedly exists, but just as in the debacle of 1929, the worst hurricanes came from cloudless skies, so at this time of apparent accounting security, there are many straws in evidence that should serve as danger signals to us.

As cost accountants, we appreciate the theory of cycles, and we know perfectly well that it is one of the most basic of all laws of the universe that nothing stands still,—we either advance or slip back. It is because of this simple and fundamental law that we have any progress or, in fact life itself. Somewhere, sometime, an economist applied the trick name of "cycle" to this perfectly simple law, and then myths began to spread around it until we forgot about the main issue and wondered whether, as the new era prophets told us, the old-time cycle had actually gone forever from our business life. Judging from the lessons of 1929, the main issue was only clouded from our vision, and yet, if we had nationally, during the "dance of the millions," kept our eyes on the ball of clear thinking, based on natural laws, instead of on the club house porch of unsound theories, things might have been different all around. Well, anyway, now we appreciate the fact that cycles still exist.

The science of cost accounting is not immune to this fundamental law. There may be either three or four stages in the cycle, depending entirely upon us cost accountants. These stages are: 1—Development. 2—Practical application. 3—Refinement. 4—Decay.

The Development Stage

The first stage in the cycle, following the usual experience, was spread over a long period of years, and may be said to have started with an announcement of the principles of scientific management by the late Dr. Taylor. This development stage can be said to have continued through about forty years and culminated in 1919 with the birth of the National Association of Cost Accountants. With the advent of the N.A.C.A. cost accounting took its place as a specific unit of management and not as an accessory. The tremendous amount of momentum thus quickly generated removed cost accounting from the stage of development to that of practical application to the problems of industry. This second stage of the cycle, namely, that of practical application, was much shorter than its predecessor, for I believe that it ended in 1930. During that time, every industry of which I know has become cost-minded to a substantial degree, and most individual concerns in these industries have some cost records. Of all the sensational developments of this most remarkable era from 1920 through 1930, none has been more outstandingly sensational than has the spread of cost accounting. Truly, this golden age pulled the sturdy infant out of his swaddling clothes with a vengeance, and behold, he stands before us in long pants.

The third stage in our cycle,—that of refinement—started during the year 1931. Back in the development days, almost anything could be delivered under the guise of cost accounting, and many were the sins committed in its name. Also, during the halcyon days of the golden era, during which our association grew from a few hardy souls to almost 7,000 aggressive cost accountants, much in the way of elementary work was essential. But now the "Dance of the Millions" has ended, and we are waking up at the "Beggar's Ball." We find that the fellows at this spree are tightfisted and insist on shopping around and knowing exactly what they are buying. It makes no difference whether the product is a pair of shoe strings, an automobile or a cost system. Therefore, the stage of refinement in cost accounting is with us. In fact, it will be with us for a long time, unless we permit the work to proceed on to the next stage—decay. And that is why I said at the beginning that cost accounting has reached the dangerous age, and the rock upon which it may be dashed to pieces is that of excessive upkeep cost.

Fighting for Existence

Today, as never before in the present century, is industry fighting for its very existence, and almost no one seems to be immune from the struggle. It is a battle for only the strong and the fit, with the result that our business shores

* From N.A.C.A. Bulletin.
[1] Cooley & Marvin, Boston, Mass.

are strewn with business wrecks. In a storm of this magnitude, no unnecessary cargoes are allowed to remain. Anything not absolutely essential to the success and safety of the ship is going overboard. As a result, we are rapidly coming face to face with the question whether cost accounting is a necessity or a luxury. This has been an academic question for a long time. Now it has reached the status where, in the words of Grover Cleveland, "we are up against a condition and not a theory." Is cost accounting a necessity? I admit I am prejudiced. For almost twenty years, with the exception of a few intermissions, I have followed this as my profession. It is and has been my hobby as well as my livelihood. Therefore, I am called as a reluctant witness, and truthfulness compels me to testify in reply to that question that fundamentally cost accounting should be a vital necessity but that actually, in many instances, it is a luxury.

Just about now you are probably thinking, "This fellow is talking a fine lot of generalities and high-sounding phrases, but how can I apply them to my problem." Very well, that is just what I am now going to try to answer by citing a few examples of what I consider luxury cost systems and profit-producing cost systems. First, let us consider a few examples of luxury cost systems.

Example No. 1

Example No. 1—is a knitting mill. It is one of the real large ones here in the Eastern section of the country. The manager prides himself upon his records. He has, in addition to his accounting department, a tabulating machine department having four clerks. His accounting department periodically prepares burden development and distribution statements, and they are always obtained from 30 to 90 days after the close of the period. Costs are obtained but they are figured statistically, using this ancient burden, and they are not controlled through the books of account. The burden is never tied into the books. Monthly statements are prepared from the perpetual inventory records as developed on the tabulating machines, through the orthodox accounting method of inventory plus purchases less inventory at the end to arrive at cost of sales. Since all labor costs are collected by order numbers for each job, no information as to the product cost of labor in each operation is available. Burden is not broken down by natural centers of operation and is not proved monthly, hence the record is valueless. Waste is absorbed as a part of each order and not developed and controlled separately, and therefore, gives no help to management whatever. As you can see, the entire scheme is disjointed—no collective effort or cohesive plan. The costs give a check on selling prices only. They do not serve as a basis for cost of sales. In short, this cost plan is a decidedly expensive luxury. It is nothing more than a drain on the rest of the business, an old man of the sea on the back of Sinbad, and if I were the manager of that business, I would throw it out so fast you couldn't see me for dust.

Example No. 2

Example No. 2—of a luxury cost system is taken from a shoe business. This company is one of the best known in the Eastern section of the United States. What do they do here? Oh, yes, they have a fine cost department; isn't that the thing to have? Every progressive firm in this day and age has one of those things. Well, in this outfit, they have fine looking cost cards—one for each style of shoe manufactured, and the cost of the shoe is shown in much detail. The Treasurer will show the visitor with pardonable pride his monthly and quarterly statements and his cost cards,—they look impressive and the visitor is usually impressed. But what is happening? This plant sells shoes through large outlets in a few price classes, say, for example, $4.00, $6.00 and $8.00 across the board. But in each of those price classes, there is a wide variety of styles and types of shoes. So they lump the labor costs into these three classes, with the result that all shoes in each range cost the same. The amount of material used on each batch is reported to the office by the factory and this includes waste, so that no cost control of waste is obtained. An estimated percentage for "cripples" is used that is arbitrary and not subject to proof. Burden is figured quarterly and has no book control. Profit and loss statements can only be obtained by taking a physical inventory. Here again, the costs are fundamentally of no value, yet a considerable amount of money is spent each year in maintaining this work. I would also eliminate this cost department right now if I were running this business, for the company would operate just as well, perhaps better, without it.

The Other Side of the Picture

Now let us consider the other side of the picture. First, there comes to my mind an internationally known dairy products concern. This company not only produces a substantial line of dairy products at a number of producing plants and distributes these products over an extensive market, but it also has all the many intricate problems incident to carrying on large farming operations in addition to a substantial live stock business. Furthermore, it produces and markets many by-products and does a large prescription milk business. In short, the operations of this company are tremendously involved, and because of stock exchange listing, the accounting must be complete and prompt. This company has predetermined standards of performances for all divisions of its business. Whether it is the cost of growing a ton of alfalfa, producing a quart of milk, or distributing an order in New York City, the standard time for the job is definite and fixed. The amount of feed and bedding used per animal per day is standardized, as, in fact, is every phase of the operations of the huge business. The result is that daily, weekly or monthly reports from the operating divisions are reduced almost to the vanishing point. On the other hand, these standards provide constant and accurate costs of producing and distributing, but above and beyond all that, they provide a yardstick of operating measurement for the chief executive, the effectiveness and worth of which can hardly be evaluated. There is never any question as to where this business is heading—it is always definitely known. Furthermore, this company is obtaining these results with the same clerical organization that it had when only the orthodox bookkeeping work was being done. Here is an instance where the cost accounting renders a service the value of which is second to none in the entire organization.

The Distribution End

The distribution end of the business is also under the same strict cost department control. Maintenance of the company's leadership is assured through regular periodic studies of the market. This embraces determination of potential business, actual business, effectiveness of competition, efficiency of salesmen, and, of course, sales standards of performance, coupled with intelligent sales methods of remuneration. The result is that this company simply could not function at anything like its normal efficiency or profitableness without this cost plan. As an example, the cost man showed the manager one day how he could, by simply making a few changes in one operation, produce sufficient savings to pay for all the needed alterations and equipment in a few months. Of course,

the changes were made. Furthermore, with old-fashioned bookkeeping methods only, this company's clerical force was as large as it is now. It would be a difficult assignment to convince this executive that his cost system is not one of his most valued possessions.

Perhaps these few illustrations will serve to indicate my conception of a luxury cost system as compared with a profit-producing cost system. We are now in a period of old-fashioned thrift, and in many instances, downright penuriousness. Some of it is necessary, more of it is simply a state of mind, but nevertheless, that is the condition. In the words of the stock market addict, "never argue with the tape." Therefore, because of this national condition, everyone expects more for his money. That is true regardless of the commodity. It is also true of the cost system. Today, the cost system must produce more information at the same cost, or else produce the same information at a reduced cost. No matter what we think about it, or how we like it, we cost accountants have got to face this fact squarely. If the boss has not already got around to the question of how the cost of cost accounting can be reduced, it is simply because he has been so busy with other divisions that our turn hasn't yet come. But mark my words, it will come. Therefore, I say to you that it is our duty as cost accountants to get aboard the band wagon, and instead of waiting for the boss to catch us by surprise with this question and, as a result, throw us for a loss behind scrimmage, to step right up to him with a program of cost reduction and thus get a couple of touchdowns across on the old boy ourselves.

Danger of Being Misunderstood

There is danger of my being misunderstood at this point. Do not gather from this that I am recommending that you just strike out blindly and start eliminating records and other data simply with the end in view of cutting costs. Nothing could be further from my mind. That would simply be a policy of panicky wantonness and would avail nothing to anyone. What I do mean is this—We have gone through two stages of the cycle, namely, development and practical application, and we are now entering the third stage of refinement. And that is just the point upon which I want to lay emphasis—it is refinement and not destructiveness with which we must busy ourselves. Always must the formula be clearly kept in mind *"How to obtain more information at the same cost,"* or *"How to obtain the same information at less cost."* That is the problem, and the goal that we must ever keep before our minds' eyes—our beacon light in this time of storm and strife.

A logical question now arises, "How can I do this?" Of course, I cannot say, not knowing your specific problem. In fact, right at this minute, I am myself wondering just how I am to do it on some of the jobs that I am handling, but I do know this—I am going to do it somehow. I will, however, mention a few points to which I always first direct my attention in approaching a problem of this sort. First, "how to obtain more information at the same cost." Perhaps the greatest weakness usually found in this category is that of faulty control of manufacturing and distributing operations through the financial books. It is so easy to let tradition creep in here and there and add an account for this or that until the entire plan gets disjointed. Well, now is the time to shear off the barnacles. Decide what accounts are necessary and then stop. No more should be added unless there is some excellent and lasting reason. The most difficult job in the whole works should be that of opening a new account. Then how about the control methods? Is the plan simply tying in the cost system to prove the costs? If so, is it not worth while. The accounting control of all operations is for the purpose of constantly reflecting the status of the business and not for cost proving purposes. There is usually much room for study and improvement here. Then, how about the executive reports? Too often do the reports come to the executive in beautiful form but they go in a book and stay there unused. Too often do we complain that the boss does not appreciate figures. The fault is largely with ourselves. We know the figures. Our job is to so present the results to him that he will instinctively be interested.

The Science of Figures

You know we often hear people say that figures are so dry, and what drudgery accounting work must be, since it is so steeped in detail. Well, did you ever think just how far off the track these people are? *Accounting is fundamentally the science of figures, and the accountant is the scientist who can best interpret them.*

Now, the second part of our formula says "How to obtain the same information at less cost." Here, I would first look to my labor records. This goes for every step, from the workman to the entry in the general ledger. Probably more time is spent on unnecessary clerical detail in collecting, posting and tabulating labor costs than at any other point. By all means, start your cost audit with the labor records. Burden is also not infrequently handled in a too detailed manner. Burden, of course, must be broken down to the proper centers of burden distribution. But every breakdown should be scrutinized to make sure that it is imperatively needed. Unless it is,—pass it up. Here again, an almost endless amount of detail can creep in. In fact, ten years ago, the so-called up to date cost system usually went so far in the breaking down and distribution of burden that much operating cost was engendered. If you are carrying out a detailed burden plan, it is dollars to doughnuts that with the proper amount of study, you can cut your detail considerably right at this point.

Many Sins Committed in Its Name

Perhaps you are operating a budget that takes up a lot of time. Now, I am not throwing the budget down, for it is a potent weapon, but I do say that many sins have been committed in its name. Budgets, like every other phase of the work, must pay a profit, but many of them most certainly do not. Unless the budget can be used as an operating guide and a fundamental basis for costs, it is no good. In many organizations, however, it is almost impossible to set up a dollars and cents budget that has any real value. In those instances, it should never be used. Instead, the budget should be a unit one, that is, units of hours, units of value, percentages, etc. These units will mean something and will thus provide for the ebb and flow of the production, without throwing the whole plan out of gear. At the same time, a constant and accurate overall control and an intelligent operating guide will be had.

Incidentally, we are prone to think that the science and art of budgeting and forecasting is distinctly a product of this age, and we regard the principles laid down in Adam Smith's "Wealth of Nations," as the early and complete exposition of the economic law and the prophets. Yet for the finest example of the application of sound economics to a practical business problem, coupled with business forecasting of the first order, it is necessary to go back through the misty pages of history, down through the dusty corridors of time, until we emerge in our search several thousand years before the time of Adam Smith. You all know the story, and yet I feel that you will pardon my repeating it because I believe that it is one of the

greatest stories of business intelligence and clear economic thinking that exists in all literature. Here was a little boy, one of a large family who early showed promise. But because he was able to grasp things that were too deep for the other brothers, they thought he had a swelled head, and that they would be better off if he disappeared. So, in the language of the present day, they decided to take him for a ride, and one day, when they were all in the fields together, they turned the kid brother over to a roving band of gypsies and then went home to their father and said that the boy had been killed in an accident. Now comes the interesting part, for it shows the mettle of the lad. The boy was sold to the ruler of a neighboring country as a palace servant. Certainly this was anything but an auspicious start, and yet when next we hear of him he had pulled himself up by the boot straps in spite of his handicaps, and he was second in command in the kingdom, next only to the king himself, whose servant he had formerly been. Of course, you all recognize the Biblical story of Joseph. Well, how did Joseph do it? His record would certainly outdo the best of the success stories offered today in this age of speed and, at times, unbelievably rapid progress. Think of it! A slave, not even knowing the language, and yet in a few short years arising to such eminence in the greatest nation of that day! How did Joseph overcome his handicaps and make such tremendous progress? The story is very clear on this point,—he simply applied practical economics. Joseph, in that ancient day, knew perfectly well a principle on which some of our modern forecasting services seem to feel they have a monopoly, namely, that in economics, action and reaction are equal. In that day, Egypt had been enjoying bumper prosperity. Crops were good and everyone had money. I suspect that Nile Navigation Common was selling at 40 or 50 times earnings and that the Preferred was tightly held by King Tut and a few others on the inside. Well, about this time, the market started to wobble a bit, and the stand of corn, as the farmers say out West, didn't appear too promising. So Joseph, in an interview, gave out that remarkable statement to the effect that prosperity had existed for seven years, that it appeared to be nearing its end, and that a protracted period of lessened activity—possibly a like number of years, could not be unexpected. We can imagine the consternation that this caused, for the king immediately sent for Joseph, and since it was not going to cost him anything, he ordered Joseph to work out his plan of farm relief and put it into effect. He had no Congress to deal with! The results are well known. And thus Joseph became the world's first great economist.

Another Great Economist

Now, let us span the centuries from the ancient days on the Nile to a city called Cleveland, and the time is the twentieth century. In that city, lives another great economist. His name is Colonel Ayres and he has much in common with his illustrious predecessor. Well, not long ago, Colonel Ayres was quoted in the press to the effect that in his years of dealing with successful men, he has noted that while all of these men were quite different, they seemed to have certain fundamental characteristics in common that were responsible for their success. Colonel Ayres has tabulated these principles and states them in the following concise manner: 1—Knowledge of the business engaged in. 2—Courage. 3—Energy—will to work. 4—Ability to get along with men.

Now, the National Association of Cost Accountants is a successful organization. That is proved by the simple history of its growth from zero in 1919 to nearly 7,000 members in 1931. Each of us, as individuals, has to a greater or less degree shared in this success. Unquestionably, we are better off than if our Association had never been. Having advanced thus far, our job collectively and individually is to hold our leadership. We have passed into the period of refinement where the going will get harder, and where the faltering souls will fall by the wayside. For, as never before, economic conditions are making the strong and the fit survive at the expense of the weak and the unfit. A golden opportunity is ours. The world of industry and commerce is looking to us for leadership and financial guidance. They are just beginning to realize that here is a vast army of specialists in the science of figures. An army of individuals who can decipher the writing on the wall that is not disclosed to others not so trained, just as the men of old did for the King of Babylon. But this opportunity carries with it a tremendous responsibility. Success breeds success, but likewise, the more successful one is, the farther he can fall. Our problem, therefore, is how to measure up to our responsibilities and our opportunity.

As a first requirement, I would say to you that we must make the four fundamentals of success, as stated by Colonel Ayres, a part of our daily creed: 1—Knowledge of the business engaged in. 2—Courage. 3—Energy—will to work. 4—Ability to get along with men.

With this creed in mind, we will first fortify ourselves with a detailed and complete knowledge of just what are the cost accounting requirements of our business. We will then have the courage to go to the boss and fight for the adoption of our reform program. Next, we will not shirk the job, but will put forth the energy to place the new program into effect, and finally, we will have to generate the ability to get along with our fellow men, if the job is to be a success.

When These Rules Were Not Applied

Now, let me give you a little illustration of the difficulties that arose for one cost accountant who did not apply these simple rules. It was during the Great War, and a certain old line manufacturer of guns had taken, in collaboration with two other firms, a contract to manufacture 3,400,000 guns and bayonets for three of the Allied countries. So this firm in question sent its Treasurer out from the New York office to the plant to get things under way. The afternoon of the first day at the factory, he sent for the cost accountant. That worthy entered in due time and the Treasurer asked him to get the cost of a certain gun. The cost accountant departed and returned shortly with the figures. "Are you sure these figures are right?" asked the Treasurer. The cost man allowed that he guessed they were. "That isn't the point," said the Treasurer, "are they right or not?" By this time, the cost man wasn't sure so he offered to take them out and refigure them and make sure. In a few minutes, he returned with a different result. The Treasurer took the figures and asked if they were right. Again the cost man was "pretty sure that they were as close as he could get them." By this time, the Treasurer was fast losing confidence in his costs, so he told the poor unfortunate cost man to go back and figure that gun over and not to return until he was sure that his result was correct. The fellow was gone a long time this trip, and when he finally came back, it was with the startling information that the first figures were right! The Treasurer leaned back in his chair and looked at our friend. "How many people have you got in your cost department?" he asked. "Sixty," said the cost man. "Let them all go," said the Treasurer. The cost man stammered. "Why," he said,

"what will we do for cost figures?" "We'll be no worse off," said the Treasurer, "we haven't any now."

Management Leadership

Our job as cost accountants is to provide management leadership to industry, but we have got to realize more fully than anyone else that costs are simply a means to an end and not the end itself. Costs are only a very important cog—but a cog, nevertheless, in the great business machine of which we happen to be a part. Therefore, the same laws and rules that apply to every other department and function of the business apply to the cost department. We, as cost men, must be the first to appreciate that fact. We must be the ones to go to the boss with our program of improvement and reduction, instead of waiting for him to get after us. Some time back, I stated the goal to which we must strive. It will bear repeating—"How to obtain more information at the same cost, or how to obtain the same information at less cost." Gentlemen, I feel deeply on this problem of keeping cost accounting abreast of our age. I fear greatly the possible results that can flow from the phenomenal success that we have enjoyed. You Yale men perhaps remember what happened in a certain football game with Dartmouth a short time ago. Well, that, figuratively speaking, can happen to us if we do not discern the signs of the times.

Had I the ability and the opportunity, I would sear this gospel upon the consciousness of every cost man with indelible letters, I would shout it from the housetops, I would write it in flaming letters of gold where he who runs may read. In closing, may I urge, that you start tomorrow to study your cost and accounting problems from the viewpoint of the outsider. Forget entirely tradition, and the reasons for things as they are, and apply the question "why?" to each step. I feel sure you will be amazed at the possibilities that will present themselves. Then by developing a constructive program of betterment, based on the changed conditions, and carrying it into effect, you will have helped your firm, yourself, and our profession.

In this high speed, high pressure age of miracles and iconoclasts, we each need a self-starter. We need a generous portion of the confidence, dash and fire spoken of by Kipling:

"And they asked me how I did it, and I gave 'em the Scripture text,
You keep your light so shining, a little in front o' the next!
They copied all they could follow, but they couldn't copy my mind,
And I left 'em sweating and stealing, a year and a half behind."

Business Needs Osteopath Says Mr. Sisson

SYRACUSE, N. Y., April 4, 1932.—George W. Sisson, Jr., president of the Raquette River Paper Company delivered the principal address at the annual gathering of the members of the State College of Forestry at Syracuse University held here during the past week. It is his opinion that business needs a good osteopathic massage to become healthy again. A spirit of gaiety and good humor prevailed at the meeting and the narrative by Mr. Sisson proved most interesting.

"Business," said Mr. Sisson, "is just out of joint and few are really working to relieve the situation. From the direction of Washington there have been a lot of nostrums and we need the work of an osteopath, one who will loosen up the joints and readjust the organism. The old world is lying sick abed in a state of readjustment. You know, the osteopath works his trick, by massaging everthing back into joint and that is what the glove needs."

PULPWOOD DUTY REQUESTED

(Continued from page 16)

economical conditions of the country slightly above the 1914 level.

The entire tax system must be harmonized with reduced incomes, Mr. Rosebush said further. He cited figures showing that in the last five years one of his companies has paid $1,245,654.32 in taxes while making a dividend return to the owners of $528,818.37. Taxes were double what the earnings were.

Construction Resumed on Thilmany Plant

Arrival of structural steel has enabled the Thilmany Pulp and Paper Company, Kaukauna, Wis., to resume construction of its new bag mill, to house its Waukegan, Ill., bag plant when the equipment is moved about June 1. The building is 135 by 200 feet, covering an area of 27,000 square feet. Manufacturing, printing and warehousing departments will be housed in the new unit. The work is being done by the Permanent Construction Company.

Voluntary Unemployment Plan

Paper mills will soon receive for consideration a voluntary unemployment insurance plan for employees from the Wisconsin Industrial Commission. It is being prepared by Professor Paul Raushenbach, of the University of Wisconsin, who has been transferred from the economics department to the commission to work with the latter body in putting into effect the new unemployment insurance law. This requires that Wisconsin employers must have in operation by July, 1933, satisfactory voluntary insurance systems covering 175,000 employees. A compulsory insurance system otherwise will go into effect. The plan being devised will be applicable to industry in general, but in order to meet conditions peculiar to certain industries, it will be placed in printed form and submitted to manufacturers for suggestions and changes before being made final. Some mills already have their own systems in operation.

Tomahawk's Reforestation Operations

Reforestation operations of the Tomahawk Kraft Paper Company, Tomahawk, Wis., were explained by C. G. McLaren, chief forester of the company, at a recent public meeting at Rhinelander, Wis., where citizens are formulating plans for county forests in Oneida County. Part of the company's forestry lands are located in this County, where lands in the cutover section have recently been purchased for expansion of operations. Mr. McLaren has taken a number of reels of motion pictures in co-operation with the state forestry, and these are being used extensively in promoting the reforestation movement. Planting is demonstrated, and some reels also are devoted to selective cutting. Andreas Christensen, of the Rhinelander Paper Company, acted as chairman of the meeting.

Multiple V-Belt Drives Suit Settled

Notice is being sent out to the trade generally by the Dayton Rubber Manufacturing Company of Dayton, Ohio, and the Allis-Chalmers Manufacturing Company of Milwaukee, Wis., that the suit of the Dayton Rubber Manufacturing Company against Allis-Chalmers Manufacturing Company, in United States District Court, in the 6th Circuit, at Cincinnati, involving patent infringement of Allis-Chalmers' Geist Patent No. 1,662,511, pertaining to Multiple V-Belt Drives, has been settled out of Court by the contending parties effecting a mutually satisfactory commercial working arrangement, under which Dayton takes a license under the Geist Patent No. 1,662,511, and Allis-Chalmers can operate under the Short Patent No. 1,538,303.

American Writing Report

In his annual report S. L. Willson, president of the American Writing Paper Company, Inc., says:—

"During the year 1931 the volume of sales of your company has kept apace with general business conditions. Although an essential commodity in commercial transactions, paper has been greatly affected, particularly the quality grades made by your company. In 1930 there were produced 52,113 tons and in 1931, the production was 36,822 tons, a falling off of 29.3 per cent. The gross sales in 1930 were $10,691,140, and in 1931 they were $7,546,571, a falling off of 29.4 per cent.

"It is necessary for your company to carry an inventory of raw materials and finished papers to cover a period of production and distribution of from sixty to ninety days. The lower costs of raw materials have been reflected in the lower prices for finished products—one practically offsetting the other—but uncontrollable losses have resulted in our inventory values because of the lower replacement costs. It has been and is the policy of the company each month to absorb such losses. During the year these have amounted to $247,698, thereby adversely affecting the net results to that extent. This sum is included in the net loss for the year, which amounted to $345,493.50.

"During the year there was expended in capital improvements $326,785, and there was charged to depreciation $252,766, making a net increase in fixed assets of $74,019. During the year we spent the additional sum of $186,653 for maintenance and repairs. The expenditures for maintenance and repairs and the amount for depreciation have been charged into cost of operation.

"To effect economies in operation, the policy of concentration of production within fewer mills has been accomplished, resulting in savings in labor and overhead costs. Curtailment of expenses by reductions in salaries and wages throughout the company has also been effected. Inventories have been kept as low as consistent with operations and sales, and part liquidation of this item has contributed to the cash working capital.

"We paid at maturity, at the close of the year, $175,000 serial notes and also purchased and retired $110,000 bonds as required by the sinking fund obligation, or a total reduction in debt of $285,000. The original issue of $1,000,000 serial notes is now reduced to $175,000 and the bond issue of $5,500,000 is now reduced to $5,390,000, of which Notes and Bonds we have purchased and now hold in the company's treasury $22,000 Serial Notes and $211,500 bonds.

"As shown by the attached balance sheet on December 31, 1931, the current assets were fourteen to one compared with current liabilities. It has not been necessary to borrow any money; all bills have been discounted; all interest charges on bonds and serial notes have been paid when due.

"Our good will, a valuable asset, is carried at $1.00. The physical properties are in excellent condition, the book value of which is much below reproduction costs. The losses from bad accounts approximate 1/10 of one per cent.

"We submit for your consideration Balance Sheet as of December 31, 1931, and profit and loss statement for the year, certified to by F. W. Lafrentz & Co., public accountants.

"The stockholders of our company can contribute to its success through the profitable increase of its business by stipulating Eagle A grades when specifying paper either for business or private uses. Our complete varieties fit every purpose, and their wide distribution makes them easily available."

BALANCE SHEET AT DECEMBER 31, 1931

ASSETS

Current Assets:		
Cash:		
In Banks	$413,419.28	
On Hand	5,042.12	$418,461.40
Notes and Acceptances		86,123.24
Accounts receivable:		
Due from Customers	$601,316.32	
Less: Reserves for Allowances, Doubtful Accounts and Discounts	69,366.00	531,950.32
Inventories: (At Cost or Market)		
Finished Paper	$797,442.60	
Work in Process	102,062.56	
Raw Material	204,667.65	
Supplies	139,869.18	1,244,041.99
Total Current Assets		$2,280,576.95
Fixed Assets:		
Land, Buildings, Water Power Rights, etc.		
Depreciated Sound Value, January 1, 1927	$10,577,616.69	
Capital Additions, year 1927 to date	2,710,661.70	
	$13,288,278.39	
Less: Depreciation, year 1927 to date	1,261,541.96	
	$12,026,736.43	
Good Will, Trade Marks, etc.	1.00	
Investments at Cost	$438,291.67	
Less: Reserve for Doubtful Value	21,899.00	416,392.61
Total Fixed Assets		12,443,130.04
Deferred Assets:		
Taxes, Insurance, etc.	$99,420.12	
Other Prepayments	6,544.75	105,964.87
		$14,829,671.86

LIABILITIES and CAPITAL

Current Liabilities:		
Trade Creditors	$127,953.11	
Accrued Wages, Taxes, etc.	25,138.78	
Total Current Liabilities		$153,091.89
Funded Debt:		
First Mortgage 6% Gold Bonds—due January 1, 1947:		
Authorized and Issued	$5,500,000.00	
Less: Bonds in Treasury at par	311,500.00	5,188,500.00
Serial 4% Gold Notes—due January 1, 1933	$175,000.00	
Less: Notes in Treasury at par	22,000.00	153,000.00
Capital Stock:		
Preferred Stock, without nominal or par value—authorized and outstanding, 90,000 shares (Voting Trust Certificates for 734.4239 shares held in Treasury)		
Common Stock, without nominal or par value—authorized and outstanding, 200,000 shares (Voting Trust Certificates for 2748 shares held in Treasury and 9175 shares in escrow)		9,278,572.33
Earned Surplus:		
Balance, January 1, 1931	$402,001.14	
Loss for the year 1931—Exhibit "B"	345,493.50	
Balance, December 31, 1931		56,507.64
Note: Cumulative Dividends on Preferred Stock are now in arrears $6.00 per share.		
		$14,829,671.86

CONDENSED PROFIT AND LOSS ACCOUNT

For the Year ended December 31, 1931

Gross Sales	$7,546,571.08	
Less: Discount, Freight, etc.	447,765.94	
Net Sales		$7,098,805.14
Manufacturing Cost of Sales:		
Raw Material	$2,741,551.78	
Direct Labor	834,308.51	
Expenses	2,408,809.80	5,984,670.09
Gross Profit		$1,114,135.05
Commercial Expenses:		
Administration	$218,452.83	
Selling	609,347.60	827,800.43
Operating Profit		$286,334.62
Other Expenses	$174,026.79	
Other Income, including profit on bonds purchased	109,036.12	64,990.67
		$221,343.95
Depreciation Reserved for the Year	$252,766.94	
Interest on Bonds	314,070.51	566,837.45
Net Loss for the Year ended December 31, 1931		$345,493.50

Gets Patent on Winding Device

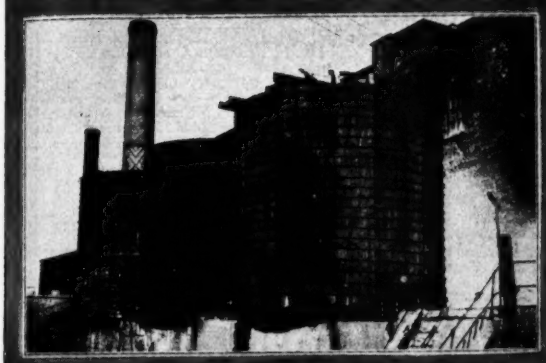
[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., April 4, 1932—A patent covering the invention of a winding machine designed to deliver heavy rolls of paper to papermaking machines has been issued to Charles W. Valentine and F. A. Helin, inventors, of this city.

The Advantages of WOOD TANKS

They are not corrodible and are ideal for acid storage, alum solution, tanks, etc. They are used where steel cannot be used and usually are preferred to steel where either will do. Wood tanks require little upkeep, are painted only for appearance and for most purposes are the most economical in the long run.
The illustration shown below is a Battery of Acid Tanks at the St. Regis Co. Mill at Deferiet, N. Y.

The HAUSER-STANDER TANK CO.
Cincinnati, Ohio



AMIJEL

AMIJEL is not an ordinary beater starch—it is a specially processed, pure gelatinized starch—ready for use. Does not have to be cooked. Just add in dry form to the beater.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

TANKS IS TANKS

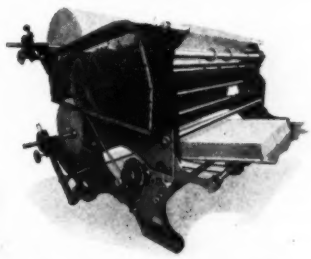
and most of them are merely that.

The modern, dollar-saving way to store sulphite cooking acid is in a Stebbins Concrete Acid Storage Tank. A life-time of use is built into every tank — "maintenance dollars" just do not exist. The concrete acid tank is more than just a container—it is an operating aid giving many distinct advantages which will save dollars in production costs — *and concrete construction costs are down!*

STEBBINS Engineering & Manufacturing Company

WATERTOWN, NEW YORK SEATTLE, WASHINGTON

H-S MACHINE CO.



New High Speed Towel Interfolder

Will fold from 30 to 40 cases of standard Interfolded Towels per hour. Ball bearing throughout. Accurate and noiseless in operation.
We manufacture stock machines for every converting purpose and design special equipment to meet any paper converting problem.

—Write for further information—

Hudson-Sharp Machine Co.

GREEN BAY, WISCONSIN
Chicago Office: 574 Wrigley Bldg.
Manufacturers and Designers of Special Machinery

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

SUMMARY

WEEK ENDING APRIL 2, 1932

Cigarette paper	15 cs.
Wall paper	2 bls., 7 cs.
Paper hangings	2 bls.
News print	438 rolls
Printing paper	44 rolls, 47 cs.
Wrapping paper	3 cs.
Drawing paper	20 rolls, 3 cs.
Filter paper	3 bls., 16 cs.
Design paper	1 cs.
Cover paper	7 cs.
Wafer paper	5 cs.
Baryta coated paper	84 cs.
Surface coated paper	28 cs.
Metal coated paper	44 cs.
Colored paper	5 cs.
Decalcomania paper	66 cs.
Tissue paper	2 cs.
Transfer paper	16 cs.
Ivory boards	3 rolls 1 cs.
Veneer paper	1 cs.
Card boards	2 cs.
Miscellaneous paper	1721 rolls, 23 cs.

CIGARETTE PAPER

Wilkinson Grey & Co., Conte Biancamano, Genoa, 10 cs.

Max Speigel & Son, Deutschland, Hamburg, 5 cs.

WALL PAPER

Guaranty Trust Co., Deutschland, Hamburg, 6 cs.

Globe Shipping Co., Deutschland, Hamburg, 1 cs., 2 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Farmer, London, 2 bls.

NEWS PRINT

——, Bergensfjord, Oslo, 438 rolls.

PRINTING PAPER

Keuffel & Esser, Deutschland, Hamburg, 44 rolls.

E. Dietzgen & Co., Beemsterdyk, Rotterdam, 47 cs.

WRAPPING PAPER

Yardley & Co., American Farmer, London, 3 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Farmer, London, 3 cs.

Keuffel & Esser, Deutschland, Hamburg, 20 rolls.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Farmer, London, 14 cs.

H. Reeve Angel & Co. Inc., Majestic, Southampton, 3 bls., 2 cs.

DESIGN PAPER

J. Bromley & Sons, Inc., Lancastria, Liverpool, 1 cs.

COVER PAPER

International F'd'g Co., Deutschland, Hamburg, 7 cs.

WAFER PAPER

Ipex, Beemsterdyk, Rotterdam, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Sierra Ventana, Bremen, 84 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Sac City, Antwerp, 26 cs.

Globe Shipping Co., Deutschland, Hamburg, 2 cs.

METAL COATED PAPER

K. Pauli Co., Deutschland, Hamburg, 44 cs.

COLORED PAPER

S. Gilbert, Sierra Ventana, Bremen, 5 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Lancastria, Liverpool, 30 cs. (duplex)

C. W. Sellers, Europa, Bremen, 11 cs.

L. A. Consmiller, Europa, Bremen, 11 cs.

C. W. Sellers, Deutschland, Hamburg, 14 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Lancastria, Liverpool, 2 cs.

TRANSFER PAPER

Rohner Gerhig & Co., Europa, Bremen, 16 cs.

IVORY BOARDS

F. C. Strype, New Britain, Rotterdam, 3 rolls, 1 cs.

VENEER PAPER

International F'd'g Co., Atago Maru, Yokohama, 1 cs.

CARD BOARDS

Gevaert Co. of America, Sac City, Antwerp, 2 cs.

MISCELLANEOUS PAPER

J. Romer, Hokuroku Maru, Kobe, 5 cs.

H. C. Davison Co., Hokuroku Maru, Yokohama, 2 cs.

Japan Import & Export Commission Co., Hokuroku Maru, Yokohama, 2 cs.

Fuchs & Lang Manfg. Co., Sierra Ventana, Bremen, 1 cs.

——, Deutschland, Hamburg, 1721 rolls.

W. Bersch, Deutschland, Hamburg, 13 cs.

BAGS, BAGGINGS, ETC.

Continental Bank & Trust Co., Sierra Ventana, Bremen, 67 bls. bagging.

Castle & Overton Inc., London Corporation, Dundee, 107 bls. paper stock.

E. J. Keller Co. Inc., London Corporation, ——, 115 bls. flax waste.

E. J. Keller Co. Inc., Sac City, ——, 40 bls. bagging.

Castle & Overton, Inc., Winona County, Manchester, 54 bls. rags.

R. F. Downing & Co., Winona County, Manchester, 266 bls. paper stock.

GLUE STOCK

Transatlantic Animal By-Products Co., Sac City, Antwerp, 75 bags.

——, Sac City, Antwerp, 116 bls.

HIDE GLUE

——, Deutschland, Hamburg, 100 bags.

OLD ROPE

Castle & Overton, Inc., Francisco, Hull, 48 coils.

——, Francisco, Newcastle, 127 coils.

——, London Corporation, London, 103 coils.

——, Winona County, Liverpool, 122 coils.

CASEIN

A. Hurst & Co., Beemsterdyk, Rotterdam, 84 bags.

CHINA CLAY

L. A. Salomon & Bro., Lancastria, Liverpool, 140 bags.

WOOD PULP

Castle & Overton, Inc., New Britain, Rotterdam, 580 bls. wood pulp, 116 tons.

Russell McCandless, Carplaka, Gothenburg, 600 bls. chemical pulp.

Irving Trust Co., Carplaka, Hango, 1250 bls. wood pulp.

Price & Pierce, Ltd., Uruguayo, Wallvik, 2400 bls. sulphite, 400 tons; 500 bls. mechanical pulp, 100 tons.

J. Anderson & Co., Topdalsfjord, Oslo, 2042 bls. sulphite.

Chemical Bank & Trust Co., Topdalsfjord, Oslo, 700 bls. sulphite.

Price & Pierce, Ltd., Topdalsfjord, Oslo, 125 bls. sulphite.

Castle & Overton Inc., Deutschland, Hamburg, 845 bls. wood pulp, 169 tons.

Castle & Overton Inc., Beemsterdyk, Rotterdam, 30 bls. wood pulp.

J. Andersen & So., Bergensfjord, Sarpsborg, 150 bls. sulphite.

Brown Bros. Harriman & Co., Bergensfjord, Drammen, 1250 bls. sulphite.

——, Bergensfjord, Oslo, 125 bls. chemical pulp.

Atterbury Bros. Inc., Bergensfjord, Halden, 3 bls. sulphite.

Bulkley Dunton & Co., American Shipper, ——, 500 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Deutschland, Hamburg, 30 rolls.

WOOD FLOUR

B. L. Soberski, Topdalsfjord, Frederickstad, 1500 bags.

——, Topdalsfjord, Frederickstad, 181 bags.

B. L. Soberski, Bergensfjord, Frederickstad, 1500 bags.

——, Bergensfjord, Frederickstad, 250 bags.

The Burnet Co., Beemsterdyk, Rotterdam, 1500 bags.

Trust Co. of New Jersey, Beemsterdyk, Rotterdam, 200 bags.

——, Beemsterdyk, Rotterdam, 350 bags.

PORTLAND IMPORTS

WEEK ENDING APRIL 2, 1932

Price & Pierce, Ltd., Uruguayo, Wallvik, 7170 bls. sulphate, 1195 tons; 5400 bls. sulphite, 900 tons.

Bulkley Dunton & Co., City of Flint, ——, 150 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING APRIL 2, 1932

1st Natl. Bank of Boston, Francisco, Hull, 758 rolls news print.

International Purchasing Co., Francisco, Hull, 81 coils old rope.

National Shawmut Bank, Winona County, Liverpool, 43 bls. rags.

American Express Co., Winona County, Liverpool, 6 bls. rags.

Fielding & Co., Winona County, Manchester, 4 bls., 14 cs. wax paper.

Castle & Overton Inc., Beemsterdyk, Rotterdam, 3080 bls. wood pulp.

W. A. Feinberg & Son, Beemsterdyk, Rotterdam, 55 bls. rags.

Bulkley Dunton & Co., Hannover, ——, 300 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 2, 1932

Belgam Corp., Hokuroko Maru, Kobe, 50 bls. rags.

Castle & Overton Inc., Beemsterdyk, Rotterdam, 420 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING APRIL 2, 1932

Price & Pierce Ltd., Uruguayo, Wallvik, 8100 bls. sulphate, 1350 tons; 12900 bls. sulphite, 2150 tons.

Congoleum Nairn Co., Sac City, Antwerp, 2801 bls. rags.

Gottesman & Co. Inc., Beemsterdyk, Rotterdam, 2150 bls. wood pulp.

National City Bank, Beemsterdyk, Rotterdam, 86 bls. rags.

S. George Co., Beemsterdyk, Rotterdam, 109 coils old rope.

NORFOLK IMPORTS

WEEK ENDING APRIL 2, 1932

Irving Trust Co., Winona County, Manchester, 131 bls. bagging.

Chase National Bank, Winona County, Liverpool, 69 bls. bagging.

——, Winona County Liverpool, 349 bls. bagging.

Irving Trust Co., Sac City, Antwerp, 154 bls. bagging.

E. Butterworth & Co. Inc., Sac City, Antwerp, 233 bls. bagging.

R. J. Reynolds Tobacco Co., Beemsterdyk, Rotterdam, 1510 cs. cigarette paper.

NEWPORT NEWS IMPORTS

WEEK ENDING APRIL 2, 1932

Price & Pierce Ltd., Uruguayo, Wallvik, 2790 bls. sulphite, 465 tons; 3000 bls. sulphate, 500 tons.

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

TRADE MARK

SIXTY years ago we did not have all the facilities that we have today, such as large factories, up-to-date application laboratories, and a working force devoting all its time to the Paper Industry.
If you are one of the few who do not know H. & M. Colors, Quality and Service, take it up with our representative on his next visit, or if you prefer, write or wire us.
We want you to come to us for any assistance that we can offer you.

HELLER & MERZ CORPORATION
286 Spring St., New York, N. Y.

Boston
85 Hartford St.

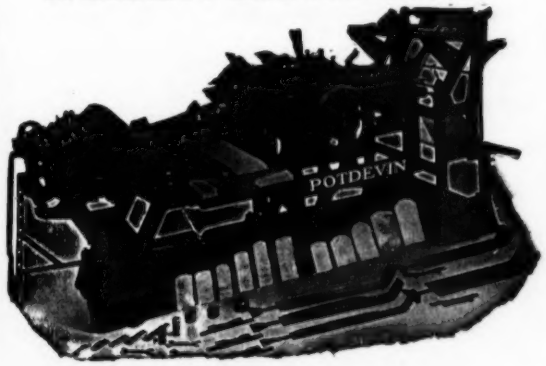
Chicago
146 W. Kinzie St.

40 Albert St.
Springfield, Mass.

Philadelphia
South St. & Delaware Ave.

Factory—NEWARK, N. J.

NEW **POTDEVIN** PRINTING
SPECIALTY BAG MACHINERY



(Model 290) 2-Color Printing Flat and Square
40 Other Models
PAPER BAG MACHINERY

POTDEVIN MACHINE CO.
1223 38th Street, Dept. 4, Brooklyn, N. Y., U. S. A.
Phones: Windsor 1700-1701-1702

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday April 6, 1932.

Trading in the local paper market during the past week was only moderately active. Demand for the various standard grades of paper has fallen off slightly, for the time being, although inquiries for future needs are fairly numerous, some of which should materialize into good orders. Prices are generally holding to previously quoted levels.

Production of news print paper is being maintained in sufficient volume to take care of current requirements, both in the United States and Canada. The outlook for the future is brightening somewhat, and the increase of automobile advertising is considered a favorable factor. The price situation continues unsatisfactory.

Some improvement was noticed in the paper board market and prices are steadier. Both chip and news board are now quoted at from $24 to $27 per ton, delivered New York. The fine paper market is displaying a stronger trend. Tissues are moving in good volume. The coarse paper market continues steady, with wrapping paper prices well maintained.

Mechanical Pulp

The ground wood market is rather quiet at present. Prices are somewhat easier. No. 1 domestic mechanical pulp is now offered at from $18 to $24 per ton, f.o.b. mill. No. 1 imported moist mechanical pulp is selling at from $20 to $22, and No. 1 dry mechanical pulp at from $22 to $24, on dock, Atlantic ports.

Chemical Pulp

Demand for the various grades of chemical pulp is fairly active. Prices are irregular. No. 1 strong unbleached imported sulphite is now offered at from $1.50 to $1.65; No. 2 strong unbleached at from $1.25 to $1.35; No. 1 kraft pulp at from $1.50 to $1.65 and No. 2 kraft pulp at from $1.35 to $1.40; all on dock, Atlantic ports.

Old Rope and Bagging

Steadiness prevails in the old rope market. Demand for both domestic and imported old manila rope is more persistent than of late. Small mixed rope is comparatively quiet. Prices generally remain unchanged. The bagging market is fairly steady. Roofing bagging is in seasonal request, while gunny and scrap are moving more freely. Prices are nominal.

Rags

Paper mill interest in the domestic rag market is restricted at present. Demand for cotton rags is listless, in most instances. Roofing grades, however, are in fairly satisfactory request. No radical price changes have been reported. The imported rag market continues dull, although roofing rags are arousing some interest.

Waste Paper

The paper stock market is exhibiting a strong undertone, and board mill demand for the lower grades is better than of late, especially for No. 1 mixed paper and strictly folded news. Offerings are not excessive, and prices are firm. The better grades of paper stock are holding up well. Book stock continues steady. Prices generally remain unaltered.

Twine

Conditions in the local twine market are practically unchanged. Demand for the various grades of twine is mainly along routine lines. A moderate volume of inquiries are being received for future requirements. Despite keen competition for desirable orders, quotations are generally holding to schedule.

Union Bag & Paper Report

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., March 28, 1932.—The annual report of the Union Bag and Paper Corporation for the past year shows that profits were cleared. The net income for 1931 is placed at $112,584 giving a profit of 77 cents a share on 146,074 shares of capital stock. During 1930 the company reported a loss of $155,283 and in the previous year a loss of $750,089.

Despite the deficits in recent years the company has continued to maintain a satisfactory position from a financial standpoint. The balance sheet at the end of 1930 showed current assets of $3,000,892 including cash and equivalent of about $1,000,000. Current liabilities amounted to $450,000 and there is no funded debt against the concern.

Celebrate Golden Wedding Anniversary

Mr. and Mrs. W. H. Goodenough, Sr., celebrated their golden wedding anniversary on January 10. They were married in West Springfield, Mass., January 10, 1882. Mr. Goodenough, Sr. was for years superintendent of the Shattuck & Babcock Paper Company, DePere, Wis., and other mills in the East.

Mr. and Mrs. Goodenough are living on a fine apple ranch at Hood River, Ore. Their oldest son is general superintendent of the Aetna Paper Company at Dayton, Ohio.

New Pulp Grinding Wheel

The Carborundum Company, of Niagara Falls, N. Y., have just published an attractive illustrated booklet describing in detail the Aloxite Brand Pulp Grinding Wheel—an improved wheel that will be of decided interest to every plant official interested in the economical production of better grade pulp. The present day artificial pulp wheel was developed by the Carborundum Company to meet the demands of paper manufacturers for an increased rate of pulp production and lower unit costs. Copies of the booklet may be obtained upon application.

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FOR CYLINDER AND FOURDRINIER MACHINES

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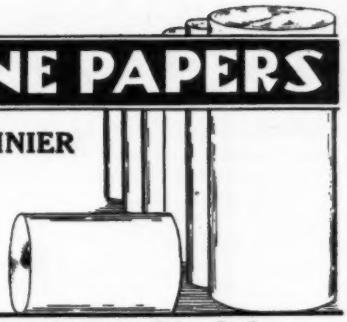

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West Virginia Pulp and Paper Company

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WOOD SUCTION BOX COVERS

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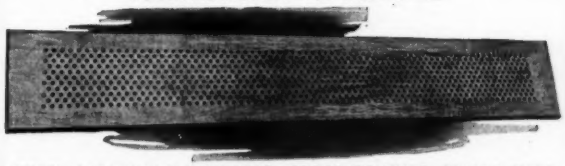

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THE MOORE & WHITE COMPANY
Paper Machinery Builders **Philadelphia, U. S. A.**

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 6, 1932.

BLANC FIXE.—Trading in the blanc fixe market is moderately active. Prices are generally unchanged. The pulp is quoted at from $42.50 to $45.00 per ton; while the powder is selling at from 3¼ cents to 3⅜ cents per pound, in barrels, at works.

BLEACHING POWDER.—Although the bleaching powder market continues listless, the contract movement is fairly heavy considering general business conditions. Prices are unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues dull. Domestic standard ground is quoted at 6½ cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8¼ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Conditions in the caustic soda market are practically unchanged. Prices are steady. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is comparatively quiet. Shipments against contract are moving in fair volume. Imported china clay is still selling at from $11 to $13 per ton; while domestic paper making clay is quoted at from $7 to $11 pe rton, at mine.

CHLORINE.—Demand for chlorine is fairly persistent. Contract shipments are going forward with regularity. Prices are holding to formerly quoted levels. Chlorine is selling at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—Steadiness prevails in the rosin market. The grades of gum rosin used in the paper mills are quoted at from $3.75 to $4.05 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.00 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market is displaying a fairly steady trend. Prices are unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Supplies of soda ash are going forward to the paper mills at a fairly steady pace for the time of year. Prices are unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follow: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—No radical changes were reported in the starch market during the past week. The contract movement was seasonal. Prices are holding to schedule. Special paper making starch is quoted at $2.54, in bags; and at $2.81 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is in a sound position. Demand is seasonal and prices are steady. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is listless. Sulphur is still quoted at $18 per long ton, on order of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the week was along routine lines. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine. Imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	3.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@27.00
Straw	34.50	@45.00
Chip	24.00	@27.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	30.00	@32.50
Sgl. Mla. Ll. Chip	35.00	@37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	20.00	@22.00
Dry	22.00	@24.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.65
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	2.00	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.60	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.50	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.50	@ 5.00
New White, No. 2	3.50	@ 4.00
Silesias No. 1	3.50	@ 4.00
New Unbleached	6.00	@ 6.50
New Blue Prints	3.25	@ 3.50
New Soft Blacks	2.50	@ 3.00
Blue Overall	3.50	@ 4.00
Fancy	2.50	@ 3.00
Washables	1.75	@ 2.00
Mixed Khaki Cuttings	3.00	@ 3.25
Pink Corset Cuttings	Nominal	
O. D. Khaki Cuttings	3.50	@ 3.75
Men's Corduroy	1.50	@ 2.00
New Mixed Blacks	2.00	@ 2.25

Old Rags

White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.75	@ 4.00
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.75	@ 5.00
New Light Oxfords	4.00	@ 4.25
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	2.00	@ 2.25
German Blue Linens	2.00	@ 2.10
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.10	@ 1.20
Domestic	1.15	@ 1.25
Wool Tares, light	1.00	@ 1.05
Wool Tares, heavy	1.00	@ 1.10
Bright Bagging	1.00	@ 1.05
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.70	@ 1.80
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

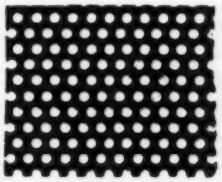
Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.55	@ 2.75
Hard, white, No. 2	1.90	@ 2.00
White envelope cuttings	2.05	@ 2.15
Soft, white, No. 1	1.70	@ 1.80
Flat Stock—		
Stitchless	.70	@ .80
Overissue Mag.	.70	@ .80
Solid Flat Book	.60	@ .70
Crumped No. 1	.45	@ .50
Solid Book Ledger	1.75	@ 1.85
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.40	@ 1.50
Extra No. 1 old	1.05	@ 1.15
Print	.45	@ .50
Bogus Wrapper	.45	@ .50
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	1.00	@ 1.10
News—		
No. 1 White News	1.60	@ 1.65
Strictly Overissue	.35	@ .45
Strictly Folded	.30	@ .35
No. 1 Mixed Paper	.20	@ .25
Common Paper		Nominal

Perforated Metal Screens

For Pulp and Paper Mills



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OUR **TRIUNE** AND
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English Weave—Fine Face Felt in Three, Four, Five and Six Ply—60" to 214" in width—insure large production. Absolutely no felt marks in paper.

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Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¾
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	05	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.80	@	1.85
No. 1 Hard White	1.65	@	1.70
No. 1 Soft White	1.50	@	1.55
Ledger & Writings	.65	@	.70
Solid Books	.60	@	.65
Blanks	1.20	@	1.25
Krafts	1.00	@	1.10
New Kraft Cuts	1.30	@	1.40
Manila Env. Cuts	1.50	@	1.60
Ex. No. 1 Manila	1.10	@	1.20
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers—			
No. 1	.40	@	.45
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
No. 2	.20	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¾
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.05½	@	.06
New White, No. 2	.04	@	.04½
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.10	@	2.20
No. 2 Hard White	1.75	@	2.10
No. 1 Soft White	1.50	@	1.70
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.20	@	1.30
Writing Paper	.60	@	.75
No. 1 Books, heavy	.60	@	—
No. 2 Books, light			Nominal
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.45	@	—
Container Manila	.35	@	.40
Old Kraft	.90	@	1.00
Common Paper	.20	@	—
No. 1 Mixed Paper	.15	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.25	@	.35
Overissue News	.40	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½

(F. o. b. Boston)

Southern Kraft	.03¼	@	.03½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.50	@	1.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.40	@	1.65
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.00	@	1.15
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.75	@	.85
Manila	.80	@	.90
No. 1 Mixed Paper	.15	@	.17½
Print Manila	.35	@	.40
Overissue News	.35	@	.40
Old Newspapers	.25	@	.30
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.22½	@	.27½
Screening Wrappers	.25	@	.32½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.15	@	1.25
Domestic	.80	@	.85
Manila Rope—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Transmission Rope	—	@	.90
Mixed String	—	@	.30
Jute Rope	—	@	.85
Jute Carpet Threads	.40	@	.60
Bleachery Burlap	—	@	2.25
Scrap Burlap	.75	@	.85
No. 1 Scrap Burlap	.80	@	.85
Scrap Sisal	.90	@	1.10
Scrap Sisal for shredding	—	@	1.25
Wool Tares, heavy	.80	@	90
New Burlap Cutting	.90	@	1.00
Australian Pouches	—	@	1.50
Heavy Baling Bagging	1.25	@	1.30
Paper Mill Bagging	.60	@	.75
Bagging No. 2	—	@	.40
No. 1 Burlap	—	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	—	@	.05¼
New White No. 2	—	@	.04
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.02¾
New Unbleached	.05½	@	—
Fancy	—	@	.03¾
Washable	—	@	.03½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03	@	.03½
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.25	@	2.50
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	1.00	@	1.25
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.50	@	2.75
Roofing Stock—			
No. 1	.58	@	.60
No. 2	.48	@	.50
No. 3	.43	@	.48

Foreign Rags

(F. o. b. Boston)

Dark Cottons	—	@	.60
New No. 1 White Shirt Cuttings	5.00	@	5.50
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.10	@	1.15
Old Linsey Garments	.70	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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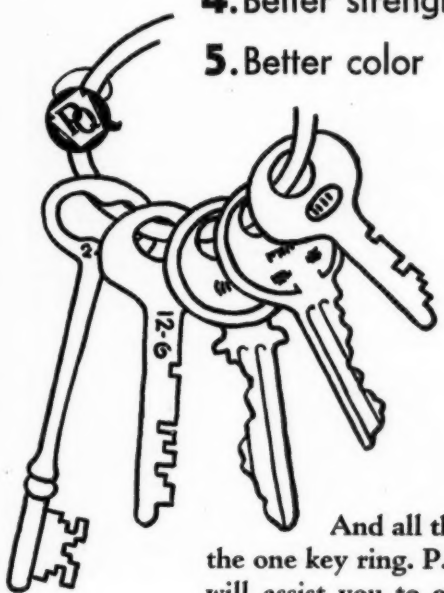

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PAPER TRADE JOURNAL

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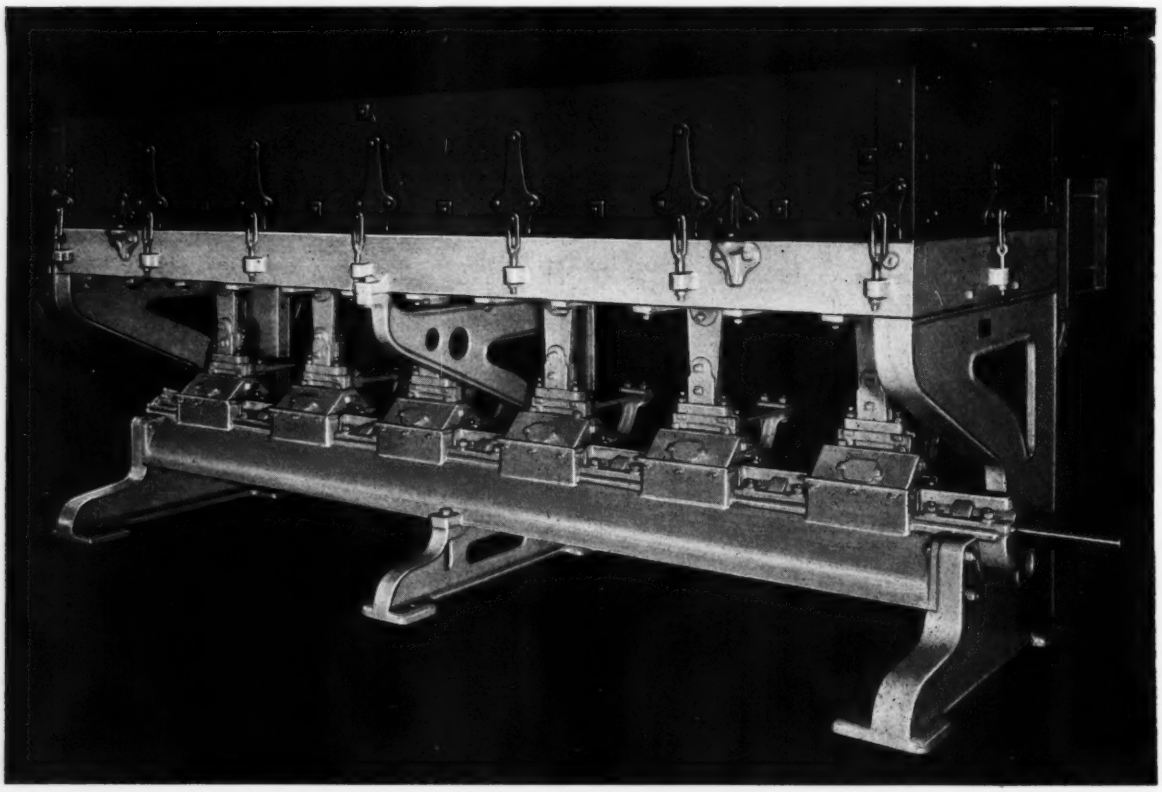

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